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ABSTRACT

This book contains nine papers on current issues and new agendas in workplace learning in Australia. The first paper, "A New Focus on Workplace Learning Research" (David Boud), examines the rise of interest in and conceptions of workplace learning. The next three papers focus on different conceptions of workplace learning: "Fusing Learning and Work: Changing Conceptions of Workplace Learning" (Philip Candy, Judy Matthews); "Understanding Workplace Learning: General Perspectives" (Paul Hager); and "Understanding Workplace Learning: Cognitive and Sociocultural Perspectives" (Stephen Billett). The next four papers examine key issues in workplace learning: "Management Learning: Research Survey" (David Beckett); "Equity and Workplace Learning: Emerging Discourses and Conditions of Possibility" (Elaine Butler); "The Assessment of Learning" (Russell Docking); and "The Costs and Benefits of Training and Assessment" (Rod McDonald). The final paper, "More Strategic, More Critical, More Evaluative: Perspectives on Research into Workplace Learning and Assessment" (David Boud, John Freeland, Geof Hawke, Rod McDonald), discusses the policy and practice implications of research on workplace learning. Appended is information on how the book was developed and how the papers were commissioned. (MN)

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Current issues and new agendas in workplace learning

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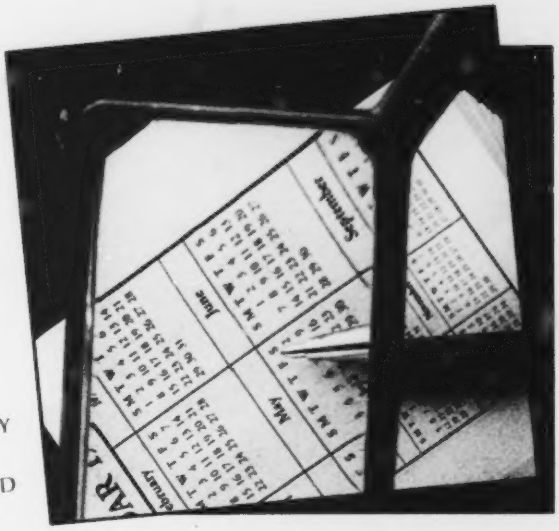

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edited by
David Boud

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1 A new focus on workplace learning research

David Boud

There has been a dramatic shift in recent years away from viewing educational institutions as the principal places in which learning occurs towards a recognition of the power and importance of the workplace as a site of learning. The nature of work is changing and this has given rise to changing demands for learning. The realm of employment is an increasingly central stimulus for and focus of learning for a wide range of vocational and non-vocational purposes.

Along with this shift of emphasis, there have been new prescriptions for business and industry such as the creation of the 'learning organisation' or 'learning company' in which learning is seen as a pivotal concern of the modern organisation. Regardless of the take-up of these particular ideas, the inter-relationship between enterprise based learning, work and employment remains a vital area for investigation. There is interest in workplaces as environments for the development of a wide range of learning goals and a move towards integrating programs which take place in educational institutions with workplace experience.

This book focusses on what we know and how we think about workplace learning. It is about understanding the complex and multifaceted field of learning at work and in settings related to employment. It attempts to bring together what is currently known about research on workplace learning in ways which are helpful to researchers, practitioners and policy-makers. In particular it focusses on the needed research agenda in this area. The book seeks to capture the rich and varied work which has been undertaken on the increasingly important phenomenon of workplace learning and to describe it in ways which make it accessible. It aims to generate discussion about directions for development of workplace learning and research associated with it.

Unlike much of the literature in this field it does not provide a how-to-do-it approach or give prescriptions about what practices should be followed. It treats workplace learning as an important activity for both contributing to the organisation and its goals as well as for contributing to the broader learning of participants. It recognises that an understanding of its complexity and its competing interests is a prerequisite to understanding.

Rise of interest in workplace learning

Over the past ten years, workplace learning has received attention from government, business and industry, education and training sectors, and the research and policy community as never before. From being an isolated and esoteric interest of few, it has become the fastest growing topic of research and development in the spectrum of education and training. This has taken place in most countries with sophisticated economies. Why is this? What has happened to create such a transformation?

Interest has been driven by recognition of the importance of learning for the purposes of work, globalisation and the push towards increasing international competitiveness. Learning is no longer something which can be bought in or developed through initial training programs, but a vital feature necessary to sustain and renew modern enterprises at all levels. Learning cannot be left to educational institutions and in-house training departments alone, it is an on-going element of all parts of all organisations and is being increasingly acknowledged as such. Understanding of workplace learning is required on a wider front and in a more diverse way than ever before.

Universities have responded to this slowly at first, but there is now a reorientation of faculties of both education and business to the needs of workplace learning. Teaching programs and research activities are placing the needs of learning in organisations as a high priority. Courses with a strong practical component are being renewed and work-based learning courses are starting to be established.

Conceptions of workplace learning

While it has always been recognised that learning at work is required in order to learn how to do the jobs that are found there, in the world of education and training, workplace learning has conventionally been regarded as an adjunct to a period of formal study in an educational institution. In this conception, learning in the workplace is needed to translate the theory of the school or college into the practice of work. This system, based on the notion of dualism which was until relatively recently endemic in both educational and business thinking, has exerted a powerful constraint on new approaches to learning. In this traditional conception of vocational learning brain and hand are split and priority is given to theory over practice.

Workplace learning is attracting attention for a number of different reasons. The workplace is becoming the site of both learning associated with enhancing the development of the enterprise through contributing to production, effectiveness and innovation, and to the development of individuals through contributing to knowledge, skills and the capacity to further their own learning with respect to their roles as employees and as citizens in wider society. This conception is in the process of collapsing and new relationships between theory and practice, mind and body and learning and work are being actively explored.

The literature on workplace learning is confusing as different research projects and different accounts focus on different learning intents, and these intents are often not immediately apparent. The most familiar of these can be summarised as follows:

Improving performance for the benefit of the organisation

- of self as worker
- of the team or work community
- of the enterprise

Improving learning for the benefit of the learner or as a social investment

- for self as lifelong learner
- for team or work community
- for future enterprises

In any given situation or any given study, there will be a different emphasis on these and the emphasis may well shift over time. However, the divide between the former enterprise-focussed conception and the latter social-focus has created much misunderstanding between researchers and clients and the perception on the part of employers that research on workplace learning is not oriented to their interests and on the part of academic researchers that business is not interested in learning!

Conceptions of research on workplace learning

Not only is the literature informed by different views of the purposes of workplace learning, it is also underpinned by quite different views about the purposes of research. The following exemplify two differences of emphasis:

- Improved performance of the enterprise
  Research of this kind is mostly conducted within organisations, is highly specific, tends to be evaluative in nature and because of commercial sensitivities it is normally unpublished.
- Improved understanding of workplace learning
  Research of this kind is informed by wider interests and contributes to issues such as the design of work and organisations, training, development and management of staff, work culture and communications and wider social and cultural purposes such as equity and social justice.

Scope of the book

In order to make the task of reviewing research on workplace learning realistic, it was decided at an early stage that while there was a large volume of research on vocational education generally, it was too large a task to incorporate all of this within the present book. While the literature about teaching and learning in educational institutions as preparation for work is unfortunately not well summarised anywhere, there exists a substantial literature which can be readily accessed as it falls within the field of educational research and can be located by conventional searching mechanisms.

Research on learning in the workplace is not so readily located. Such research does not sit comfortably within any existing disciplinary area or field of enquiry; it necessarily crosses boundaries. Literature is found within the areas of management and business, education and training, industrial relations, economics and politics, policy studies, psychology and sociology and many others. Each discipline brings its own characteristics, concerns and methodologies to discussion of issues. This means that it is a particular challenge to encompass these ideas within a single volume. While there has been some attempt to do so here, it must be recognised that the depth of consideration which can be given to any issue in a multidisciplinary field is quite different to that in any one of the parts which creates the whole.

The nature of workplace learning, as we have seen, means that it can be viewed through the lenses of many different perspectives. The decision made here is that rather than encompass them all, the book should adopt the lens of learning and use that as its organising principle. This means that the interests of those concerned with learning are foregrounded while other dimensions of workplace practice are regarded as part of the background. Most of the contributors are practicing educators as well as researchers and this influences the approach they adopt. They draw on ideas beyond their immediate interests, but they deploy their analysis to the end of illuminating learning purposes and practices.

Even within this particular orientation, there are diverse views. The writers come from many traditions and backgrounds and they use these to analyse research on workplace learning in different ways. While they are able to draw on a considerable body of literature, it is important to note that relatively little research and theorising has been directly related to workplace learning as such. This means that the contributors are moving in a poorly explored terrain. The current book is therefore one of the first attempts to map aspects of the field and to point to implications for future research.

How was the book constructed?

The present book is the outcome of a project established by the Research Centre for Vocational Education and Training at the University of Technology, Sydney as part of its infrastructure funding from the Australian National Training Authority. The aim of the project was to provide a basis for future research on workplace learning through identifying existing research, analysing it and pointing to further research which would inform debates in vocational education and training.

The project involved producing an initial map of the field, getting feedback on this from practitioners and researchers throughout Australia, identifying researchers well known for their particular expertise in aspects of workplace learning and commissioning them to write papers about various aspects of the field. These papers formed the focus of a National Colloquium held in Sydney in July 1996. Participants included key figures from the worlds of research, practice and policy-making and both public and private sectors were represented. Short versions of the papers were critiqued by participants and their views of issues in workplace learning recorded.

Following the Colloquium, the full papers were subject to a formal refereeing process. Each paper was examined by one researcher and one person who was either a senior practitioner in VET or involve in policy matters. Referees were drawn from

Australia, the United States and the United Kingdom. The papers were revised by their authors having taken account of the views of the referees. These form the chapters in this volume.

What issues does the book address?

The aim of the book is to bring together what is known about workplace learning, examine it critically and propose directions for future developments in both research and practice. The book provides a research-based picture of developments in this growing area.

Some of the themes which appear throughout the book are:

- a new recognition of the importance of workplace learning
- the highly contextualised nature of it
- the rapidly changing context which responds to changes in the nature of work
- the inappropriateness of seeing research as a collection of 'facts' about workplace learning
- the need to engage issues of practice and performance
- the location of workplace learning in the broader context of lifelong learning

Throughout the authors seek to provide frameworks for considering issues and new ways of representing the complexities of the field in an accessible form. Directions for research are considered, but simple prescriptions are avoided as these would not reflect the diverse needs of workplace learning.

The chapters which follow are grouped into three sections. The first set of three chapters orients the reader to the broad field and points to some of the main features of the area of learning and work. The chapters within this section explore different perspectives which can be taken on learning at work. The first sets the discussion in context and emphasises an organisational perspective, the second a philosophical one and the third a cognitive and sociocultural one. The second section focusses on key issues related to management learning, equity, assessment of learning and costs and benefits. These sections are followed by a final chapter which reflects on the issues and research directions which have been presented and identifies major concerns for researchers, practitioners and policy-makers.

In the first cluster, Phil Candy and Judy Matthews start by introducing the notion of fusing learning and work. In chapter 2 they plot changing conceptions of workplace learning which have evolved over time. They identify five views of workplace learning which are captured under the headings of the workplace as a site for formally accredited learning, as a site for complex technical interactions and problem-solving, as a site for sharing and creating knowledge, as a part of the knowledge society and as an organic identity, capable of learning and adaptation in its own right. Dominant themes which underlie, and progressively change throughout, these eight different conceptions, are identified before turning to a consideration of those management practices and organisational structures which research has shown are most likely to facilitate informal learning in organisational settings.

In chapter 3 Paul Hager takes as his starting point a range of perspectives from the general educational literature which can be applied to an understanding of workplace learning. He draws upon ideas from experience-based learning, Dewey's theory of learning, Argyris and Schön on professional practice, Marsick and Watkins on informal and incidental learning and the generic skills and economic perspectives articulated by Carnevale and Berryman. From his background in the philosophy of education he analyses these approaches to identify the relatively agreed principles from these diverse sources which elucidate factors claimed to facilitate or hinder effective workplace learning.

Stephen Billett in chapter 4 examines how individuals construct knowledge as part of everyday activities in the workplace, drawing on cognitive and sociocultural theory. The literature from a cognitive perspective is used to inform about goals for learning where knowledge required for expertise. This is of particular significance as it is in this literature where the most direct attempts to conceptualise workplace learning have so far been made. The sociocultural literature is then used to demonstrate how learning is likely to occur in workplaces. Drawing upon a review of these literatures, the potential and limitations of workplaces as learning environments are identified. The chapter concludes by proposing a model for organising experiences in the workplace as part of everyday activities.

Many separate themes are explored in the book, but it is important to keep in mind that as far as learners and those involved in workplaces are concerned, they experience the totality of these. Assessment cannot be isolated from learning practices; knowledge is constructed with respect to all the influences which impinge on an individual. For the sake of clarity of focus and to highlight issues in particular areas, we have taken the view that there should be separate chapters on management learning, assessment and equity issues and have them dealt with by authors with special interests in these areas rather than risk submerging them within broader discussions.

The second section considers major issues central to learning at work: the learning needs of managers and how they might be approached, the role of assessment in workplace learning and the tensions which exist between assessment for accreditation and the needs of productivity, and the vital area of equity and how both individuals and organisations can be advantaged and disadvantaged by lack of awareness of difference. It concludes with consideration of issues often neglected by proponents of workplace learning initiatives: the costs and benefits involved.

David Beckett in chapter 5 recognises that managers have new responsibilities for their own and for others' learning. Under the umbrella of organisational learning, management learning needs to be shaped by pragmatic decision-making ('on-the-job'), yet directed towards strategic priorities (the 'mission, or 'vision'). Research in this field has been driven by traditional management models, based on structures and applied theory; yet this no longer captures the dynamism, flexibility and inclusiveness of the contemporary workplace. Overall, this chapter argues that rigorous research will move beyond the mere mapping of trends and the limitations of case studies, towards generalisations that are contextually-sensitive, pragmatic and strategic.

Elaine Butler in chapter 6 maps the fields of equity and workplace learning. She seeks out the organising principles of each, and the discourses involved. Both equity and workplace learning are located within the broader (social, economic and political) fields of globalisation; work studies and labour relations; lifelong learning and the establishment of national systems of vocational education and training. Notions of equity act as a framework for analysis, to illustrate how advantage/disadvantage is constructed within the prevailing and contradictory discourses of workplace learning. While workplace learning is usually framed as non-problematic and a 'good thing', this chapter argues that it is emerging as an integral component of the discourse of productive culture. The vulnerability of equity within this scenario which privileges the economic over the social is discussed.

In chapter 7 Russell Docking takes a pragmatic approach to reviewing research in the area of the assessment of learning in the workplace. The review reflects present understandings of the field and the adequacy of research conducted. The chapter considers the following: forms of assessment used, various theoretical underpinnings of workplace assessment, links with classroom assessment, competency-based approaches, record-keeping and interpretation, the selection and training of assessors, the recognition of prior learning, equity and the impact of assessment on organisational productivity and practice. The chapter concludes with a call for more disciplined research into these aspects of assessment in the workplace.

Economic considerations are never distant in considerations of workplace learning and in chapter 8 Rod McDonald discusses an area which is poorly represented in the literature: micro-level costs and benefits. Decisions about education and training are often made either by education and training personnel with little understanding of the resource implications, or by administrators who may have lost touch with the realities of teaching and learning. This is a particular problem for workplace learning, which operates within a wide variety of contexts and constraints. This chapter enables the resource implications, and outcomes, of particular approaches to workplace learning to be systematically and critically analysed, to help all those involved look objectively at the costs and make better-informed decisions.

The final section reflects upon previous chapters and draws upon discussions held at the National Colloquium to summarise key issues. The conclusions about research on workplace learning in chapter 9 are captured in its title 'More strategic, more critical, more evaluative'. It takes what has been discussed earlier and explores implications from the perspectives of practitioners (those working to promote workplace learning in particular settings), policy makers (particularly with regard to public policy in this area) and research (both researchers and those who commission and consume research).

The book provides a rich source of ideas and information and brings together considerations of workplace learning in ways which has not been attempted before. However, it has been difficult for the authors to address one of the original goals of the project. That is, to find gaps in research and suggest ways in which they might be addressed. In reflecting on the final product it is interesting to speculate on why this is the case. My own view is that it says much about the nature of the field.

As workplace learning is so complex and multi-faceted and because it has been grossly neglected until recently, it is relatively unexplored. It does not lend itself to the kinds of research review which can be undertaken in an academic discipline which is well-mapped, has well-established and accepted research methodologies and is contained in a discrete research literature. Workplace learning is a site of intersecting interests, contested ideas, multiple forms of writing and rapidly evolving practice. This makes it an exciting area in which to operate, but one which does not lend itself to neat solutions. This book will have succeeded if it encourages researchers to enter into its challenges and to find ways on engaging with, interpreting and giving language to a part of life and society which contributes to productive outcomes – learning and work – for all involved.

2 Fusing learning and work: Changing conceptions of workplace learning

Philip Candy and Judy Matthews

CONTINUOUS AND RAPID change in the workplace has brought about the need for continuous adaptation and learning, much of it in anticipation of further turbulence. Some of this learning takes place in formalised settings, such as classrooms and training programs; however, most of it occurs incidentally within the workplace. Consequently, there has been a great deal of attention in recent years to work-based learning and, in particular, to how it might be facilitated and enhanced.

This paper examines some of the research literature concerning work-based learning, a close reading of which reveals a range of variant meanings and connotations. Different authors may use the same terminology (such as the 'learning enterprise' or the 'learning organisation',) yet have in mind very different understandings of what the term implies. The paper advances an eight-part typology of meanings attributed to 'work-based learning', ranging from 'the workplace as a site for formal accredited learning', through 'the workplace as a site for sharing and creating knowledge' to the 'workplace as an organic entity, capable of learning and adaptation in it own right'. An attempt is made to identify dominant themes which underlie, and progressively change throughout these eight different conceptions, before turning to a consideration of those management practices and organisational structures which research has shown are most likely to facilitate informal learning in organisational settings.

Background

We are constantly assailed by so many changes in virtually every aspect of our lives that unrelenting change seems more often the rule than the exception. At the macro level, for instance, there have been a series of industrial and organisational transformations, which include:

- national focus → international focus
- resource-based economy → knowledge-based economy
- restrictive workplace practices → open workplace learning

- award restructuring ➡ workplace reform and renewal
- traditional industrial relations ➡ total quality relations

In the workplace, too, changing demographic patterns, microeconomic reform, new legislative environments, altered industrial relations approaches, and of course the ubiquitous impact of technology have all conspired to make organisational structures as well as work and management practices subject to continuing modification. In the public, private and voluntary sectors, in universities and the professions, on the farm and in small businesses, continuous turbulence has replaced stability as the norm, and for most people the concept of the 'stable state' (Schön 1971) seems little more than a distant memory.

One of the consequences of these many changes has been the need for continuing learning: no matter how effective or time-honoured existing practices may be, it is not enough to continue to rely on approaches which may have served well in the past. A second consequence is that organisations themselves have had to change – in some cases beyond recognition – and this in turn provides an additional impetus for learning. Consequently, the ability to learn, and the organisational circumstances which encourage and enhance learning, have become the focus of both theoretical speculation and practical experimentation.

At least some of this learning occurs in formally structured and organised programs and sessions, either on-the-job or off-the-job, while much of it occurs incidentally, in the course of other productive activity (Marsick & Watkins 1990). The purpose of this paper is to provide an overview of the types of work-based learning which these many changes have made necessary. However, the focus of the paper is not on formal programs; instead, it deals largely with the incidental and informal learning which occurs in the workplace. Moreover, within the context of informal and incidental learning, the focus largely relates to job-related performance, rather than to what might loosely be termed 'personal growth and development,' although this is clearly a grey area, since even the most intimate of personal transformations can affect people's work.

What makes this process of analysis all the more difficult is the array of other changes which have also been going on at the same time. Even the concepts and language used to discuss and describe workplace learning have undergone considerable contestation and transformation. Thus the discussion which follows must be seen within the context of the following changes[1]

- knowledge viewed as neutral ➡ knowledge viewed as 'political'
- knowledge viewed as individual ➡ knowledge viewed as socially constructed and shared
- knowledge viewed as explicit ➡ knowledge recognised as implicit and tacit
- workers viewed as interchangeable cogs in a machine ➡ workers viewed as interdependent parts of a network
- individuals ➡ teams ➡ networks
- workplace environment as static ➡ workplace environment as dynamic
- organisations as individual entities ➡ organisations as interdependent components of the knowledge society

- training as top-down and elitist → learning as organic, integrated and for everyone
- formal preparation separated from work → work and learning interlaced
- education distinct from training → continuous skill formation
- single loop learning → double loop learning → meta-learning
- the human resource practitioner as trainer → facilitator of learning

Together, these changes in the economy, in education, in organisational life, and in understandings of learning (each of which could command a chapter in its own right) amount to the need for radically different approaches to both the structure and management of workplaces. The remainder of the paper includes some contextual comments about work-based learning, a taxonomy of types of work-based learning highlighting Australian contributions to the literature, some observations about organisational structures and management approaches which facilitate organisational learning, and finally some suggestions about possible future directions for research in the field.

Preparing for work and learning at work

In previous generations—in some cases as recently as a couple of decades ago—learning about work occurred at work. Most jobs were in fact learned through performing them, no formal qualifications were required, and individuals progressively and cumulatively developed the skills which were utilised in making a living. Indeed, in some domains (for instance, management), this is still the dominant mode of learning (Gattegno & Millwood 1995). Gradually, however, as the body of skills and knowledge required to adequately perform some task or process expanded and became more complex, so did the processes of education or training for that job. Although the actual learning still tended to occur in the work-based setting, the haphazard and serendipitous nature of such learning gradually gave way to more structured approaches to learning from a more experienced practitioner, frequently through a formal system of apprenticeship.

In the case of the mediaeval craft Guilds, for instance, elaborate gradations of skill and knowledge distinguished the apprentice or novice from the journeyman and in turn the journeyman from the master craftsman. Progression from one rank to the next involved not only lengthy periods of apprenticeship, but also passing certain tests of skill or knowledge. Eventually, however, these processes of instruction and examination came to be the dominant mode of entry to the trade or calling.

As time went by, and in line with the dominant notions of specialisation within the workplace, the concept of specialisation in preparation for work led to the emergence of dedicated facilities and systems such as schools or colleges where training for the workplace actually took place (Hager & Laurent 1990). While originally such formal educational settings supplemented workplace learning, in recent years attendance at formal courses has become the principal, and, in certain cases, the only means of gaining admission to the rights to practise that trade or profession. Thus, over the years, the workplace has gone from being the only site for work-related learning, to being instead a secondary setting for work-related learning, limited principally to learning the specific practices of a particular employer, professional or other practitioner.

In recent years, however, this trend has to some extent been reversed, and the fundamental importance of the workplace as a site for learning has been reasserted. There are many reasons for this. In part it derives from the rapid and pervasive nature of social and technological change, and the recognition that no amount of initial training can equip people with all the skills and knowledge required to carry them through their working lives. In part, it is based on the recognition that people typically spend a greater proportion of their lives in workplace settings than they do in formal training. And in part, it is based on recent research which indicates the subtle ways in which knowledge and competence are constructed and, in fact, in which knowledge is socially distributed in the workplace. For all these reasons, and in a context where 'knowledge is the only meaningful resource' (Drucker 1993) and where 'the ability to learn faster than competitors may be the only sustainable competitive advantage' (de Geus 1988, p.71), much greater attention has been directed to helping people to learn and to maintain currency in the specific work-based context.

Generative learning: The new frontier

As mentioned above, in the past, practices and contexts changed only slowly, and people often stayed in one industry or profession for their entire working lives. Furthermore, the learning which they were required to undertake generally involved little more than absorbing new knowledge and skills as they were needed. The consequences of this were twofold; firstly learning was principally reactive or responsive, and secondly, skill as a learner was neither highly valued nor explicitly developed. Today, however, the rapid rate of change in most occupational areas, the explosion of knowledge in many fields, the increasingly widespread impact of technology, and the phenomenon of geographic and occupational mobility, mean that few if any can escape the need for continuing work-based learning. In her book entitled *In the age of the smart machine*, Zuboff puts it this way:

> *The [truly successful] organisation is a learning institution, and one of its principal purposes is the expansion of knowledge . . . that comes to reside at the core of what it means to be productive. Learning is no longer a separate activity that occurs either before one enters the workplace or in remote classroom settings. Nor is it an activity preserved for a managerial group. The behaviours that define learning and the activities that define being productive are one and the same. Learning is not something that requires time out from productive activity; learning is the heart of productive activity. To put it simply,* learning is the new form of labor. (Zuboff 1988, p.395, emphasis added)

Some of this learning is achieved through deliberate, planned programs of staff training and development, and some through the self-directed or group-based learning activities of the employees or practitioners themselves, but most of it occurs through incidental or adventitious means, including exposure to the opinions and practices of others also working in the same context. Irrespective of the form or location of learning, however, there is evidence to suggest that the truly effective practitioner is one who actively seeks out opportunities for new learning; who indeed is constantly scanning the environment in an attempt to predict what the major new directions will be. This type of learning is referred to as 'generative' or 'anticipatory,' to distinguish it from the more common concept of 'reactive' or 'maintenance' learning (Botkin et al. 1979).

As a consequence of this shift, the ability to learn is itself being regarded as a principal competency, one which distinguishes the successful from the less successful practitioner, and hence the successful from the less successful organisation. This ability to learn is made up of a complex of personal attributes and abilities, many of which may themselves be enhanced through educational interventions. Thus, the development of learning competence is one feature of the effective workplace (Cheren 1990), as is the opportunity (rather than simply the imperative) to go on learning. In the following sections, this paper considers the types of work-based learning and the sorts of managerial practices which facilitate such learning, before turning to a consideration of possible new directions for research and inquiry.

Models of work-based learning

The literature on work-based learning is vast and complex. For decades, scholars in North America, Britain, Australasia, Japan, Europe and elsewhere have been observing and writing about what and how people learn in all sorts of organisational and professional settings. The Australian literature, while necessarily much smaller than this whole domain, nevertheless embodies the same complexities, albeit in miniature.[2]

Coming from a range of fields of study (adult education, higher education, cultural anthropology, organisational theory, innovation studies, industrial economics, management studies, vocational education, etc.), a variety of theoretical perspectives (behaviourism, interpretivism and critical theory), different points of view (the manager, the learner/worker, the development practitioner), various contexts or environments (manufacturing/production-based industries, knowledge- or service-based organisations, the public sector, universities, professional practice etc.), and using every imaginable methodology (from surveys and interviews, to diaries and participant observation) they have generated a bewildering array of models (for recent summaries see Dodgson 1993; Easterby-Smith 1996; Field & Ford 1994; Marriott & Morrison 1996).

Not unexpectedly, each of these provides a different way of framing the issue of work-based learning, and a different contribution to our overall understanding. Indeed at least some insights gained in one domain might be of relevance and interest in the others. However, because of the tendency towards disciplinary specialisation, people working and writing in one domain often ignore the contributions of those working and writing in other related areas. One consequence of this is that knowledge bases often grow up independently of one another, despite the fact that they are dealing with the same, or very closely related issues. This means that people working within one paradigm frequently use different terminology to describe what is essentially the same phenomenon; even more problematic, however, people often employ the same terminology when they actually mean something different.

The concept of 'work-based learning' suffers from all three of these problems: there has been a diversity of work in various parallel but non-overlapping fields of study and practice; there has been a proliferation of different terminology to refer to the same basic concepts; and the term itself can mean very different things depending on the ideological and organisational perspective of the writer or speaker.

A close reading of recent literature reveals a range of variant meanings, connotations and perspectives on work-based or 'organisational' learning. While few if any writers represent these meanings in any pure or absolute sense, and indeed some of them include elements of more than one at a time, it is nevertheless useful to examine the underlying views which are implicit in various approaches to the topic, not least because each different conception embodies or endorses different views of the role of management, of the formal education system, and/or of the structure of the workplace. These various views are captured as follows:

1. The workplace as a site for formally accredited learning
2. The workplace as a site for complex technical interactions and problem-solving
3. The workplace as a site for sharing and creating knowledge
4. The workplace as a part of the knowledge society
5. The workplace as an organic entity, capable of learning and adaptation in its own right

Although these various conceptions of work-based learning have been presented as a cumulative hierarchy, where each one subsumes and goes beyond those prior to it, there are no grounds for assuming that some are inherently 'better' than others. Some conceptions are indeed more complex and more sophisticated than others; however, each has a place in understanding the total phenomenon, and each has its particular strengths and weaknesses.

In the same vein, it is also tempting to view the various conceptions as chronological and to assume that the 'earlier' conceptions have been progressively refined and improved by those that came 'later'. While it is certainly true that, in common with other domains such as science, each generation of theorists has built on the work of those who went earlier, it is also quite possible for particular conceptions to coexist, and for one to 'shade off' imperceptibly into another. Indeed, as mentioned earlier, individual authors, theorists and practitioners can simultaneously hold more than one conception at a time; it may even be possible to find several distinct conceptions embedded within a single author's writing.

In the sections which follow, each of these various views is discussed and explained.

The workplace as a site for formally accredited learning

In the first conception of organisational learning, the organisation is viewed principally as a site for the acquisition of knowledge and skills that form part of an accredited award. In this view, although the workplace is construed as a rich environment in which learning may take place (indeed often richer and better endowed than the classroom or other formal learning setting), the concept of formal education is paramount. In this view, which Sharratt and Field (1993) typify as the 'top-down' model, knowledge is viewed primarily as an artefact to be conveyed to learners by 'experts', and 'curriculum concerns are dominated by how to maximise the flow rate [of knowledge and skills] and perhaps how to ensure that knowledge and skills flow on into the workplace' (p.129).

While this view of work-based learning has existed for a long time, it has been given added relevance and immediacy by recent Government initiatives such as award restructuring, micro-economic reform, Training Guarantee legislation, and multiskilling. Together with major changes in the higher education sector, increased demand for places in the vocational system has led to greater emphasis on alternative delivery, open and resource-based learning.

In recent years, there has also been considerable attention to the notion that universities and colleges need to offer their courses or programs through flexible delivery mode, with the learning taking place at the convenience of the learner. The result of this has been a 'distribution of learning sites' and greater emphasis on situational analyses and use of learning opportunities and challenges that are embedded in the workplace, yet often without challenging the essential supremacy of abstract propositional knowledge and the credentialling role of formal education institutions.

A variant of this conception is that of the workplace as a site for context-specific training, which is also founded on the notion that basic and broad preparation for work should occur in a formal context such as school, college or university, but which acknowledges that different rules govern practice in different workplaces, and that competitive advantage can accrue to the organisation (or, in the case of a profession, to the practice) which manages to train its people most effectively. Authors writing from this perspective frequently emphasise that 'informal learning settings such as workplaces provide a range of attributes such as authentic activities, access to experts and other learners, and sociocultural environments which are highly prized in the development of expertise' (Billett 1993, p.4). Yet despite the relevance, immediacy and authenticity of learning which occurs in the workplace, knowledge is still viewed predominantly as existing outside the learner.

In the Australian literature, an early attempt to embed learning in the workplace was undertaken by the then Department of Aviation, which provided training for certain line managers who were designated as 'tutors' and even as 'tutor co-ordinators' throughout the organisation. According to a booklet prepared by the Staff Development Design Group within the Department of Aviation (Jackson et al. 1983), 'The Department . . . needs trained tutors at all levels because staff development is essential to the effective functioning of the organisation'. The booklet goes on to indicate the following advantages of work-based learning in preference to conventional off-the-job training:

- productivity increases
- greater job satisfaction for staff
- development is easily adapted to fit in with normal work schedules

- reduced time away from the job
- building of good work relationships (1983, p.1)

While the entire tone of this approach might appear somewhat simplistic and naive by today's standards, it is important to acknowledge this pioneering effort, and to recognise that almost 15 years ago, practitioners were beginning to capitalise on the workplace as a site for learning, and on colleagues, including senior staff, as potential resources for work-related learning efforts.

The workplace as a site for complex technical interaction and problem-solving

The second general conception of learning in organisations is based on the view that work is complex and often non-recurrent. Therefore, people have to learn to deal with complexity and to understand the principles that underlie their work, rather than learning standardised procedures and routines. Under this conception, it is recognised that organisational learning needs to be facilitated and that conventional modes of training may be inadequate to the sort of serendipitous and variable situations that might arise. Practitioners are introduced to problem-solving algorithms and are permitted – even encouraged – to learn from trial and error. In the more sophisticated version of this paradigm, reflective practice may sometimes be advocated, since it acknowledges the 'epistemology of practice' or, in other words, the view that effective practitioners may know more than they can say, and that informed professional judgement plays a role in performing many tasks (Schön 1983).

Linked with (or, more accurately, subsumed within) this conception is the view that the workplace is also a site for vital social interactions. In this particular view, the aim is to ensure that workers, at whatever level and in whatever capacity, have or develop high level interpersonal skills. An important element of this perspective is its emphasis on problem-solving through team-work; however, instead of learning about group dynamics in an abstract or theoretical way, people are encouraged to see the workplace as a learning laboratory, where their interactions with others provide opportunities for further learning about interpersonal relationships.

Under this conception, organisations commonly view team formation and teamwork as vital to the organisation's way of operating, and people may be encouraged to keep diaries or to participate in various reflective practices designed to enhance their effectiveness as team members and even as team leaders. At least some authors within this framework place considerable emphasis on the team as a site for learning, and emphasise semi-autonomy as a major way of organising work. In the Australian context, a great deal of pioneering work within this 'socio-technical' paradigm was undertaken by Fred Emery, in conjunction with various collaborators and over a period of many years (Emery 1974, 1989; Emery & Trist 1965).

The workplace as a site for sharing and creating knowledge

In each of the above conceptions, knowledge is seen as individual, and, although teams or other work groups may be thought of as useful – perhaps even indispensable – sites for learning, nevertheless knowledge is primarily an objective and individual matter. In this third major conception, however, knowledge is seen as socially distributed: no one person has all the information needed to get the job done; indeed vital information is spread within a team or even beyond it. In her 1987 Presidential Address to the American Educational Research Association, Resnick contrasted 'Learning in school and out':

> *. . . a major part of the core activity of schooling is designed as individual work – homework, in-class exercises, and the like. For the most part, a student succeeds or fails at a task independently of what other students do . . . In contrast, much activity outside school is socially shared. Work, personal life and recreation take place within social systems, and each person's ability to function successfully depends on what others do and how several individuals' mental and physical performances mesh.* (1987, p.13)

Resnick illustrates this point with an example drawn from the experience of docking a US Naval Warship in San Diego Harbour, where a number of people must each perform separate but interlocking roles for the manoeuvre to be completed successfully. She goes on to note that:

> *No individual in the system can pilot the ship alone. The knowledge necessary for successful piloting is distributed throughout the whole system. Furthermore, important aspects of that knowledge are built into tools [such as charts and gyrocompasses] . . . thus, there is a further sharing of knowledge with . . . the builders of the tools, who are not present during piloting, but who are part of the total knowledge system required for successful piloting.* (1987, p.13)

Thus, while individual practitioners may still have to undertake productive work on their own, taking responsibility for their own specialty, the interface between their area and others is vital, and learning involves a broader understanding of how the whole task is achieved. The concept of the 'community of practice' is central to this conception of organisational learning, and is one domain where research into learning in the professions may usefully inform research and thinking about other forms of work-based learning.

Indeed a 'community of practice' not only shares existing knowledge; it also provides an arena for the development of new knowledge. Complex and non-recurrent situations not only throw up the need for new solutions, but also provide fertile opportunities for new knowledge to be generated and shared within the organisation or even beyond it (Nonaka et al. 1996). In his paper on 'The workplace of the future', Ford states:

> *We need a high performance work organisation that does more than deliver a product or service. The work organisation must now be designed in such a way that it develops quality and productivity, adaptability and reliability, innovation and improvement and shared learning. In Japan, when we did the OECD studies of the automobile industry, our guesstimate was that 60 per cent of innovation in Japan came from the place of work not*

> *from universities or research departments. Learning and work are integrated to achieve continuous improvement.* (1995, p.27)

In other words, learning and work are integrated to create new knowledge. In such situations, creativity is prized, and learning by workers is viewed not as ancillary to but effectively as inseparable from their productive role. There is, however, a subtle shift in the definition of what constitutes knowledge. Instead of the emphasis being on propositional knowledge with its implication of generalisability and universality, knowledge (or more correctly, 'knowing') is seen as constantly evolving, context-dependent and socially constructed. In an interesting essay on 'Knowledge, knowledge work and organizations', Blackler argues that knowledge is mediated, situated, provisional, pragmatic and contested. In such a view, Blackler argues, instead of focussing on the kinds of knowledge that have traditionally been demanded, 'attention should focus on the systems through which knowing and doing are achieved'. He goes on to state:

> *Because of the changes that are occurring in capitalism . . . (such as moves towards the globalisation of markets and finance, new information and communication technologies, post-Keynesian governmental policies, and new approaches to strategy, management and organisation, etc.) activity systems are changing significantly. Rather than asking 'what sorts of knowledge are needed in contemporary capitalism and how may organisations harness them?' the question thus becomes 'how are systems of knowing and doing changing, and what responses would be appropriate?'* (Blackler 1995, p.1040)

Consideration of this question has led to the concept of the 'knowledge creating company', which has probably been most fully elaborated by Nonaka and his colleagues from Japan. Nonaka and Takeuchi argue that, although all knowledge is ultimately created by individuals, its value to organisations lies in the dual processes of articulation and amplification: articulation as it moves from being tacit to being explicit, and amplification as it moves from the individual through groups to the organisation itself (and, in some cases, beyond the organisation to influence 'affiliated companies, customers, suppliers [and] competitors' [1995, p.89]). According to them, the success of many Japanese corporations can be traced to their nurturing and valuing of knowledge creation, and to those management practices and organisational structures which facilitate the 'spiral' process of organisational knowledge creating.

The concept of the workplace as a setting for generating new knowledge has clear implications not only for the kind of workers who are employed, and the sort of attributes they may be expected to bring with them into the workplace, but also for the expectations held of schools, colleges and universities as sites for preparing people for the workplace. In fact, within this conception, the notions of 'education' and 'training' become increasingly inseparable, and the distinction begins to dissolve in favour of an overarching concept of 'continuous skill formation' (Ford 1991b, p.61).

The workplace as a part of the knowledge society

In this conception, which seems to have gained greater prominence and impetus in recent years, the workplace is viewed as essentially boundary-less, and learning occurs, at least in part, because of the organisation's fuzzy and porous perimeters. This perspective is well conveyed in the following quote from a paper by Wachtman and Lane entitled 'Principles of global competition':

> *In an increasingly competitive global economy, business leaders need to think* and *behave differently. They have to manage a diverse work force often scattered across the entire expanse of the globe. Managing across all 24 time zones means there is literally no end to the work day. Vital information is constantly flowing into the organisation; it has to be digested, deployed and acted on almost immediately. Decisions have to be made quickly, taking into consideration a multitude of factors: diverse markets, cultural differences, geographical distances, changing economic and political circumstances, to name but a few. Managers in successful global organisations are able to master the inter-relationships between these factors. The competitive advantage of the next century will be determined less by the exploitation of key raw materials and the investment of capital, and more by the ability of managers to rapidly absorb and act upon this extensive array of information.*
> (1995, p.1)

With information passing seamlessly across national, disciplinary and time boundaries, the organisation is inextricably woven into its environment by the impact of modern technology. In his paper on technology and innovation, Dodgson writes:

> *Analysis of the innovation process has . . . progressed from seeing innovation as an activity which occurs within the boundaries of individual firms to understanding that numerous organisations acting in concert contribute to the generation and success of new products, processes and services . . . . Analyses of the contemporary innovation process show that the major transformations occurring* within *firms as they move towards becoming creative, process-based 'learning' firms need to be complemented with close* external *alliances with suppliers, customers and joint venture partners, and directed by increasingly effective and well articulated technology strategies.* (1996, pp.216–217)

Indeed, many people working within organisations and in the professions are in a situation analogous to that of academics, who enjoy dual relationships; on the one hand with the institution as an employer and a locus of their work, and, on the other hand, with a commitment to the discipline or community beyond the employing organisation or workplace. Such a view of work means that practitioners who may be competitors in some contexts are collaborators in others, which is changing significantly the potential multi-lateral flow of information, and the learning opportunities and demands on them.

In his paper on 'Building learning organisations in healthcare', Gauthier gives an interesting example of this phenomenon when he writes of a 'learning collaborative' created in 1992 by representatives of eight healthcare systems. Each organisation nominated three members, called 'bridge builders', who attended meetings every three or four months for three years, where they shared issues of common concern, discussed applications and experiments in their particular organisations, and generally challenged their own, and their institutions' established ways of thinking. As Gauthier points out, the fact that these eight systems were in different cities, and therefore not in direct day-to-day competition with one another, probably helped to make the collaborative such a success, but so too did their access to learning specialists, their pooling of resources which no one system could have committed on its own, and indeed the fact that they all belonged to a single industry group with shared concerns and a common policy environment: indeed, 'recognising the value of cross-organisational experiences and of learning by teaching, three organisations with similar interests are now joining the original group to further increase the diversity and richness of the collaborative' (1995, p.397). In the Australian context, a similar initiative involving Shell, GMH, Colonial, Melbourne Water, Mount Isa Mines, ANZ Bank, BHP, IBM, Coles-Myer and the National Australia Bank has recently been set up under the title of the 'Leadership Consortium Inc.' (Abernethy 1996). Although it differs from the learning collaborative in that most of the participating organisations are drawn from differing sectors rather than from the same sector, nevertheless the notion of the organisation as part of the 'knowledge society' is common to both initiatives.

The workplace as an organic entity, capable of learning and adaptation

In each of the previous conceptions, learning – although increasingly complex and sophisticated – is viewed as an activity of the people within the organisation. However, some authors (for instance, Choo 1995; Dixon 1992; Hedberg 1981; Huber 1996) have come to the view that organisations themselves – including teams or groups within organisations – are capable of learning, and have appropriated the term 'learning organisation' (or sometimes 'learning enterprise') to refer to such an entity. In our view, such usages must be metaphoric, because it is really only people who can learn – groups of people (including organisations) can certainly change, and groups clearly represent an extremely important locus of much learning – however, learning itself is the prerogative of individuals, whether they are managers, employees or individual practitioners. Nevertheless, it is true that organisations, if they are to survive, must be adaptable and responsive, and accordingly new organisational models are clearly called for.

One of the most ardent advocates of this perspective is GW (Bill) Ford (1984, 1986, 1987a, 1987b, 1987c, 1988a, 1988b, 1991a, 1991b, 1995), formerly of the Industrial Relations Research Centre at the University of New South Wales, and now a private consultant. The following rather lengthy quote explains his position:

> *Critical to achieving workplace reform in Australian enterprises is the widespread understanding and acceptance of meeting international standards. The OECD/CERI [Organisation for Economic Co-operation and Development/Centre for Educational Research and Innovation] enterprise studies clearly illustrate the dominant importance of the internationalisation of national economies. Enterprises in different cultures and industries are increasingly required to, concurrently, meet international standards of adaptability, reliability, improvement, innovation, customisation, service and leadership.*
>
> *To meet these diverse demands, successful enterprises have created processes for achieving a diversity of conceptual changes and integrated innovations in participative work organisation, technology, skill formation and employment relations . . . [However] the successful transplanting of conceptual changes and integrated innovations is not a simple packaging and delivery operation. It requires the dedicated talents, energy and time of a wide variety of participants. It requires a learning enterprise.*

> *A learning enterprise is one where individuals, teams* and the enterprise itself *are continually learning . . . In a world characterised by multi-dimensional and often multi-directional changes, the long-term survival of enterprises is increasingly dependent on their ability to learn how to continually meet old and new customer demands; to learn how to effectively use new technologies; to learn to develop new work organisations; and to learn how to change their balance of skills and knowledge . . . An important conceptual shift is from the traditional and false dichotomy of education and training to the more integrating concept of continual skill formation. That is, from a front-end model of classroom instruction to a lifelong model of learning. At the enterprise, this means a more systematic interlacing of theory and practice, through the development of learning-based work organisations.* (1991b, pp.60–61, emphasis added)

Likewise, according to Sharratt and Field:

> *When one reviews the literature of organisational learning, some of the recurring themes include:*
>
> - *the need for organisations to develop a brain-like culture*
> - *the need for learning to take place at all levels of the organisation*
> - *the importance of the organisation's 'absorptive capacity'*
> - *the importance of recognising the learning potential of planning*
> - *the need for ongoing double-loop learning and attention to learning about learning*
>
> (1993, p.130)

Few contemporary workplaces are based on such assumptions, and if learning – whether corporate or individual – is to be placed at the centre of the organisations' life, then new approaches to the management and structure of organisations will clearly be demanded. This theme is explored further in the next section.

Structures, management approaches and technologies which facilitate learning

In view of the recent and widespread shift towards the need for anticipatory learning, attention has been devoted to a consideration of (1) the kinds of organisational structures, (2) management practices, and (3) communication and information technologies that are most conducive to the learning which has been shown to be desirable – even essential – in the coming decades.

With respect to *organisational structures* themselves, it has become increasingly apparent that many conventional organisations, especially bureaucracies, are actually antithetical to, rather than supportive of, the development of a culture of learning. As complexity has increased, many organisations have attempted, through increasingly sophisticated means, to 'manage the complexity', with the ironic consequence that the complexity is often multiplied, and 'learning' is frequently compartmentalised from productive performance rather than being integrated within it. In his case study of training within the fictionalised 'Kramden Computer Company', Darrah points to the 'sadly paradoxical case of workers being simultaneously rendered ignorant on-the-job, while being removed from the job in order to learn' (1995, p.40). 'Training', he writes, 'served to frame learning in the workplace as a special activity that was peripheral to daily work and by doing so it excluded the production workers as active learners' (1995, p.40).

Others have advanced the need for much more organic organisational models where learning is integral to the form of organisation and to the nature of the work itself. For instance, Mathews recommends a 'system architecture' where 'the emphasis is on building autonomy into nested sequences of operational entities' such that organisations are made up of small building blocks which are relatively autonomous, and therefore adaptable to changing circumstances, both inside and outside the organisation. He refers to this approach as 'holonic' and explains that:

> *. . . the object of holonic organisational design is to create self-adjusting, self-renewing systems through a continuous process of organisational learning . . . In place of the massively disruptive practices of 'large-scale organisational change' which conventionally-structured organisations are forced to undergo every time there is a shift in their operating priorities, there is instead in holonic architectures a system for smoothly dismantling the old and erecting the new. It is simply a matter of replacement of relevant holons and holonic levels, with due regard to the human relations of the process.*
>
> (1996, p.47)

In a similar vein, Ford claims that we need to move from hierarchical systems, 'where you climb the traditional, narrow, rigid paths of the organisational ladder, to a new dynamic where people are moving up learning opportunities and are rewarded not by status symbols, but by learning . . . the workplace of the future will be all about . . . delivering notions of learning' (1995, p.28). Savage writes:

> *Instead of working sequentially in isolated departments, cross-functional resources are combined to work on large and small projects in parallel through task-focussing teams and through teamwork . . . Costing is done by project rather than by burdening direct labor.* The enterprise internalises the capability of continual learning. People are expected to teach and learn from one another on an ongoing basis. *There is more discipline in these organisations. Instead of bureaucracy, the enterprise is held together by an understanding of the core expectations of the organisation – its vision.*
>
> (1990, p.211, emphasis added)

Clearly such organisational approaches – 'replacing vertical hierarchies with horizontal networks; linking together traditional functions through interfunctional teams; and forming strategic alliances with suppliers, customers and even competitors' (Hirschhorn & Gilmore 1992, p.104) – place very different demands on managers, and it is evident that many managerial practices, particularly those which, predicated on the exercise of control, seek to diminish experimental behaviours, are not geared to the central importance of learning. This perspective is perhaps best captured in the following quote from Slocum et al.:

> *Using learning strategies to become an industry leader requires a company to adopt three management practices that capitalise on its capabilities and culture as well as its competitive strengths . . . What are these new practices? The first is developing a strategic intent to learn new capabilities. The second is a commitment to continuous experimentation. The third is the ability to learn from past successes and failures. These practices will enable a company to constantly renew itself and develop new sources of competitive advantage.*
>
> (1994, p.38)

At a more detailed level, the day-to-day *practice of management* must also change to accomplish the ideal of a learning organisation. In her paper entitled 'Intelligent technology, intelligent workers', Schuck discusses the need for what she terms a 'pedagogy for meaning' and, in particular, the role of management as 'managers of inquiry' in an information-rich organisational setting:

> *The beliefs, attitudes, and behaviours of the manager are at the heart of the environment of inquiry. Within a pedagogy for meaning, a manager creates opportunities for learning and becomes an active participant in it. The manager of inquiry encourages people to ask questions and creates an environment in which intellectual play and socially mediated learning are necessary and legitimate components of work.*
>
> *How does the manager of inquiry function? Workers have described a 'special' manager . . . as 'somebody who listens . . . asks me what I think . . . helps me solve problems . . . explains things to me . . . makes me understand . . . makes me think'. Workers respect and seek out such managers because they help them sharpen their intellective skill. Workers can readily approach managers of inquiry to ask questions and test their hypotheses.*
>
> (Schuck 1996, p.207)

Evered and Selman have a similar view, arguing that managing should be analogous to 'coaching', which they define as 'creating and maintaining a climate, environment and context which enable/empower a group of people to generate desired results, achievements and accomplishments' (1989, p.17). They contrast this vision of 'managing as coaching' with the much more common and widespread vision of 'management as control'. Central to their vision of management is the notion of self-correction and learning.

Third and finally, *advanced information and communication technologies* are becoming increasingly pivotal to the success of organisations and professional practices, irrespective of their size or industry sector. This is because 'information technology not only automates, it also "informates" . . . [and] because it creates more and different information, an informating technology can create an environment for thinking and problem solving' (Schuck 1996, p.199). Thus the successful integration of technology into the organisation's functioning can have dramatic impacts on the learning opportunities (and demands) for those who work in them. As Huber puts it:

> *Organisational learning requires information to be stored and retrieved from memory, just as does human learning. Because computing technology facilitates these processes, and has great capacity for storing and organising information, it can facilitate organisational learning to a degree not generally recognised, or at least not acted upon . . . Automatic capturing and sophisticated retrieval of . . . information results in computer-resident organisational memories such as completeness and precision, that may be superior to the human components of organisational memories.* (1996, p.830)

Likewise, the successful use of technologies has inescapable implications for how individual enterprises interface with others, including suppliers, customers, regulatory authorities and competitors:

> *. . . the opportunities provided by new information technologies and the increased strategic management awareness of the value of alliances and networks, encourage firms' innovative activities to be increasingly externally integrated.* (Dodgson 1996, p.217)

It would seem, then, that the most adaptable, responsive and ultimately successful organisations in the new competitive environment will be characterised by non-hierarchical and flexible structures, by open and facilitatory management styles, and by the seamless and unobtrusive integration of appropriate technology into the organisation's functions. Above all, however, they will be characterised by their continuing preoccupation with the question; 'what will most assist with continuing learning?'

In their book, *Sculpting the learning organisation*, Watkins and Marsick argue that learning occurs at four interdependent levels: individual, team, organisation and society. Taking this into account, they identify the following six 'action imperatives' for the creation of a learning organisation:

- create continuous learning opportunities
- promote inquiry and dialogue
- encourage collaboration and team learning
- establish systems to capture and share learning
- empower people toward a collective vision
- connect the organisation with its environment

They conclude, 'the creation of a learning environment goes far beyond the design of learning itself. It involves the design of work, work environments, technology, rewards systems, structures and policies' (Watkins & Marsick 1993, p.44).

Conclusion and recommendations for further research

This paper began with a consideration of the manifold changes which are impacting on our workplaces today and their consequences for work-related learning. Together these changes have created the need for organisational transformation and workplace restructuring, but this in turn, has become yet another pressure for work-related learning. In other words, changes in organisations and in work practices, although often in response to external turbulence, are commonly experienced as part of the turbulence by the people working in those settings, and organisational transformation is thus paradoxically both a consequence and a cause of continuing work-related learning. Because of this, and because of the highly individual (and frequently unpredictable) nature of most personal learning, managed organisational change appears to be a significant way in which turbulence in the environment may be interpreted and to some extent channelled in the interest of creating a manageable level of personal adaptation and change. In the absence of such approaches, individual workers are exposed to the full force and undiluted restlessness of the social, cultural, economic and technological milieu in which they are attempting to operate at work.

Turning to the issue of further research, clearly the volume and complexity of literature which has already been generated around this topic gives an indication of the many potential directions which research might – and probably will – take. At the broadest level, the notion of the learning organisation itself manifestly requires further explication and analysis, not only because of its multiple meanings, but because it has the potential to be 'translated into an instrument for control so that the ambiguities of organisational life, potentially fruitful for learning and creativity, are suppressed in favour of a dominant and stable set of beliefs and interests' (Coopey 1996, p.365). The complex and changeable field of epistemology also demands greater attention; Blackler concludes his paper with almost two pages of suggestions about further study which should ideally be undertaken into the changing meaning of knowledge and of 'knowing' (Blackler 1995, pp.1040–1042) in work-based settings. In a recent review of the literature, Easterby-Smith (after cautioning against the folly of attempting to identify 'any integrated research strategy in the field of organisational learning' because 'the various perspectives and disciplines each have their own methodological traditions') ventures the following suggestions:

> *Looking toward the future, the research agenda may well vary according to perspective. From the psychological view, further work should be conducted into how individual and shared cognitive maps can change; from the management science perspective there could be more emphasis on looking for failure experiences as well as successes [although these might have to be retrospective as companies may be unhappy about the potential of negative publicity]; the strategic view could concentrate more on the way organisational learning operates in practice – from the viewpoint of participants rather than of top managers; . . . and from the cultural perspective it is important that further theorising be done around cultural assumptions not dominated by the USA.* (1996, p.19)

Notwithstanding Easterby-Smith's cautionary comments about research agendas, in the context of identifying a limited number of areas of possible research concentration, four topic areas in particular are suggested in this paper: how Australian enterprises will be able to adapt flexible and organic models of organisation from abroad; the development of internal and external alliances and collaborations; the strategic adoption and use of technology to facilitate individual and corporate or collective learning; and, finally, what all this might mean for the formal education system.

First, there is the question of how adequately current and likely future organisational models derived from abroad fit into the Australian corporate ethos. In his paper on 'The workplace of the future', Ford (1995) makes the following comment, almost in passing:

> *One of the problems we face in this country is that we have a constant clash of cultures. The traditional managerial culture comes from the United States and the United Kingdom, but most of the concepts that are reforming the country's workplaces are coming in from Europe and Japan. So quite often the executives of the organisation are talking about something quite different from people in operations. We need to understand that there are cultural clashes going on in how people see the future.* (1995, p.25)

One major research direction, therefore, would be to explore the ways in which radically different Japanese and European conceptions of organisational life – including the nature of work and management, the place of technology, and the role of learning – can be integrated within, rather than being imposed upon, the prevailing Anglo-American corporate culture and ethos of much Australian enterprise.

Second, it is evident that the workplace of the future will inevitably involve greater internal and external collaboration than has prevailed in the past, with venture-partners, clients, suppliers and even unions. Unfortunately, the Australian tradition of individualism might stand in the way of such collaboration. Dodgson writes that, of 39 countries surveyed, Australia ranked second after the United States for individualism. He observes that: 'The Asian economies, by contrast, had generally low individualism. Whilst not equating collectivism with trust, this indicator might point to the general propensity of Australians – despite lingering traditions of 'mateship' – to avoid cohesive networks and groups; one of the features which provides many Asian economies with a considerable source of strength [and of learning]' (1996, p.224). Dodgson then goes on to identify a vital area of research interest, based on this insight:

> *. . . we know very little about the ways Australian firms are dealing strategically with technology and how effective they are at defining and building the competencies necessary to remain competitive. Successful firms network effectively; that is, they share learning and do so in high-trust relationships. Research into Australian firms may be beginning to outline the extent [of] and need for this networking, but . . . we need to know much more about the relationships between large and small firms that enhance related diversification on the part of small firms; how any learning is transferred; and how firms' learning activities are encouraged through links with Asia.* (Dodgson 1996, p.225)

Clearly, this represents a major research agenda for those interested in Australian work-based learning.

Third, it is apparent that leading-edge practitioners – both in the professions and in the corporate sector – are harnessing technologies in very effective ways, not only in the productive dimension of work, but also in how workplaces are managed and, in particular, how they encourage and facilitate learning. This would seem to have at least two, related aspects. The first is that new technology creates a need for new learning, and research needs to be undertaken into how Australians are coping with the learning needs thrown up by new technologies, especially, but not exclusively, those to do with information and communication. An even richer domain for research, however, might be how technology can facilitate learning in the workplace. It is clear that technology can provide an important strategic advantage if it enhances the organisation's 'absorptive capacity', and it is therefore argued that research into the embedding of technology within the culture of effective 'learning organisations' would be a fascinating, and potentially fruitful, area of inquiry.

Fourth and finally, what are the implications of these various trends and changes for the formal education system: schools, colleges and universities? In their book *Transforming higher education: A vision for learning in the 21st century*, Dolence and Norris are quite uncompromising. Until now, they argue, universities and colleges have responded only haltingly and in a piecemeal way – if they have responded at all – to the rapidly changing work environment of the Information Age. However, such haphazard and fragmentary responses cannot continue:

> *If the leadership in higher education does not chart a course for moving higher education into the Information Age, then others will attempt to chart that course for us. Or they will navigate around higher education, finding other learning agents and intermediaries who*

> *can address the opportunities attached to learning in the Information Age – and reap the rewards.* (1995, p.68)

Whilst it is undoubtedly true that the education system has much broader goals and responsibilities than merely producing people for the workforce, it is also undeniably true that formal education needs to take account of major changes in the nature of the workplace, both in terms of what is taught and how. This imperative is, if anything, more significant in the domain of 'learning' than many of the other skills and attributes which employees are expected to bring with them into the workplace.

In recent years, there has been a great deal of attention – at both the secondary and post-secondary levels – to the issue of employable skills, and how these may be built into the curriculum. Many of these surveys and documents, however, although they talk vaguely and ominously about change, and about the impact of technology and workplace restructuring, lack any specific reference to, or recognition of, the kinds of *learning skills* that are likely to be needed in the workplace of the future. Without recent experience of the workplace beyond the academy, many teachers and lecturers may be forced to rely on second-hand accounts, or, worse still, on speculative and stereotypical images of what the contemporary workplace is actually like.

It is vital that the rapidly changing nature of work and of learning at work is researched in such a way that it can be transmitted back into the academy, so that the required skills may be developed there. This, of course is not easy. In a recent article entitled 'Ivory tower to concrete jungle: The difficult transition from the university to the workplace as a learning environment', Candy and Crebert (1991) identified a number of discontinuities between the two, and cautioned that, because of significant differences between the two learning environments, there is no simple bridge from one to other. However, it is vital that every attempt be made to prepare today's students to be the responsive, creative, adaptive and flexible learners that tomorrow will demand.

Acknowledgement

Because of the huge volume of literature that has been generated about this topic, and the range of fields of study under which it is to be found, it is very difficult to obtain an overarching conspectus of what has been published. We are indebted to Laurie Field, organisational consultant, researcher, lecturer and author, for generously providing us with copies of many papers, reports and references which would otherwise have escaped our notice or been difficult if not impossible to locate.

Endnotes

1 The identification of these various continua owes much to the work of Laurie Field and Bill Ford, to whom due acknowledgement is made.

2 Given the increasing globalisation of research and writing about organisational learning, the concept of a distinctively Australian literature is rapidly losing its usefulness. It is both difficult and meaningless to attempt to identify whether a particular piece of writing originated in, was published in, or pertains to Australia.

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3 Understanding workplace learning: General perspectives

Paul Hager

WORKPLACE LEARNING IS a typical interdisciplinary topic in that it can be viewed, and has been viewed, from the perspective of a variety of disciplines and fields, such as sociology, cognitive psychology, policy studies, management theory, adult education, economics, learning theory, industrial psychology, etc. As well, there are various literatures which are arguably relevant to an understanding of workplace learning, even though their main focus is somewhat different. These include research on the nature of expertise, on professional practice, on situated learning, etc. Hence, research on workplace learning represents a convergence of rather diverse literatures.

In order to make the task manageable, this chapter will concentrate on selected non-psychological literature that is relevant to informal workplace learning.

The central questions for this chapter are:

- What is workplace learning?
- What assumptions do various authors make about the nature of workplace learning?
- What conditions promote workplace learning?
- What conditions limit workplace learning?

The main focus of the chapter is on what the various authors considered say that workplace learning is and/or on what they assume it is. It should be noted that while not all of the authors have themselves used the term 'workplace learning' as such in their writing, nevertheless, their work is evidently relevant to this topic as it is commonly understood. The idea of the chapter is to identify the relatively agreed principles from the diverse sources considered and to further elucidate factors that are claimed to either facilitate or hinder effective workplace learning. What follows, then, is a brief critical analysis of the main ideas employed in various literatures relevant to workplace learning. These ideas are then collected and compared for commonalities and differences. While there appears to be no theory of workplace learning that has gained overall majority support, a set of broadly agreed principles about workplace learning can be identified.

Methodology

Because of the diversity of sources considered, some common baseline is needed to compare and contrast the basic features of the different views. In order to achieve this, I will apply a model due to Frankena (1970). This model, which Frankena originally developed as a way of analysing any normative philosophy of education, is, in fact, equally applicable to any broad theory about education. This model serves to identify the different types of principles and assumptions contained in the various theories being considered. This will enable a more productive comparison of points of agreement and difference between the various theories.

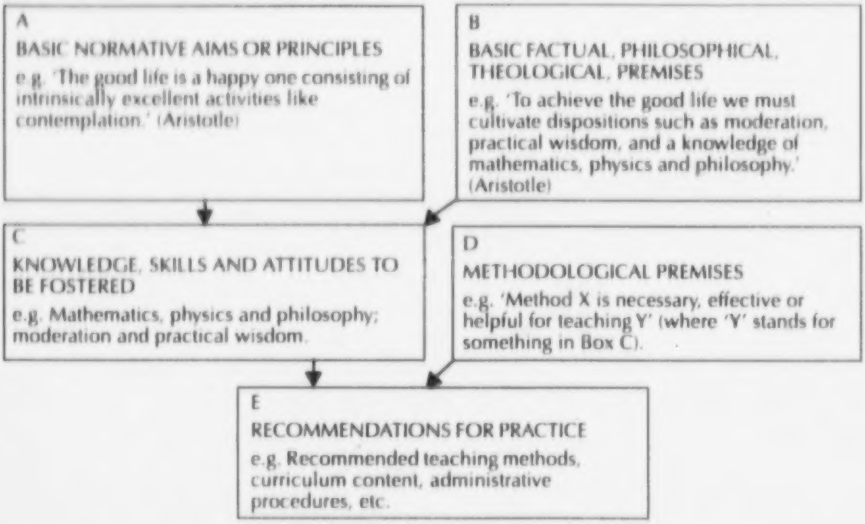
Frankena's model is aimed at normative rather than descriptive theories, i.e. at theories that prescribe how things should be rather than ones that merely report how they are at present. As we will find, the various theories of workplace learning that are considered are all normative theories about education. They are normative in that they not only propose ways to make workplace learning more effective, but all of them also urge some larger normative imperatives for adopting their proposals, e.g. so that the enterprise can remain competitive or so as to empower workers. Before applying the Frankena model to the analysis of the various writings about workplace learning, we first need to understand the model.

The following is my attempt to summarise and make sense of the main points about Frankena's model. This model as applied to the analysis of an educational theory is based on the idea that such a theory would typically include up to five different kinds of statements. That there are five kinds of statement stems partly from the different natures of some of the statements and partly from the fact that some kinds of statement serve as premises for others. Hence the five kinds of statement can be arranged in levels, with the various levels also having different degrees of generality or abstraction from the level of practice. As represented in figure 1, Frankena assigns the five different kinds of statements to 'boxes' as follows: (A) Basic Normative Aims or Principles, (B) Basic Factual, Philosophical, Theological Premises, (C) Knowledge, Skills and Attitudes to be Fostered, (D) Methodological Premises, and (E) Recommendations for Practice. The differences between the boxes and levels will be clarified in the following discussion.

So the model distinguishes between five different kinds of statements that it is claimed might appear in a normative theory of education. Three of these kinds of statements are themselves normative, viz. those about fundamental aims and principles for education (Box A), those about the knowledge, skills and attitudes that education ought to foster (Box C), and those about the practical methods and procedures that education ought to follow (Box E). As well there are factual statements either about what knowledge, skills and attitudes are conducive to achieving the fundamental aims or following the fundamental principles for education (Box B), or about methods that are useful/effective for the acquisition of particular knowledge, skills and attitudes (Box D). Frankena argues that some such factual statements, including possibly hypotheses that explain factual statements, psychological theories, experimental findings, predictions and the like, are necessary for a complete normative theory of education. In addition, he argues, a normative theory of education will often contain epistemological, metaphysical or theological statements in Box B and/or Box D, though he thinks that none of these are necessary for a complete normative theory of education. Finally, Frankena allows that any of the boxes, where appropriate, will include some bits of analysis, e.g. definitions of concepts, etc.

The second noteworthy feature of Frankena's model is that it comprises two parts: arguments with A and B as premises for C as conclusion (ABC pattern), and arguments with C and D as premises for E as conclusion (CDE pattern). Of these two parts, Frankena (1970, p.21) points out that the ABC pattern is the more properly philosophical, while the CDE pattern is the more practical. He suggests that his model distinguishes three kinds of normative theory of education: (a) one that is complete in that it incorporates both the ABC and CDE patterns; (b) one that is more philosophical, (the ABC pattern), which leaves the details of implementation to educators; and (c) one that is less philosophical, (the CDE pattern), whose author might take the list of knowledge, skills and attitudes from some more philosophical work, or eclectically derive them from a range of sources, or simply accept what is valued by society, parents, the state, the church, etc. Sometimes, arguments which initially appear to be of the CDE pattern will turn out to include statements from boxes A and B as assumed premises. Frankena further points out that distinguishing these patterns is relatively easy in authors such as Maritain, but much harder in the case of others such as Dewey or Whitehead (1970, p.16). In order to illustrate the operation of the model, figure 1 includes Frankena's own analysis of the ABC components of Aristotle's theory of education. Figure 2 shows my use of the model to analyse the major features of Wain's theory of lifelong education (Hager 1995). Wain's theory is 'complete' in the sense that it encompasses both parts of the Frankena model.

Figure 1: Frankena's model for analysing a philosophy of education



A
BASIC NORMATIVE AIMS OR PRINCIPLES
e.g. 'The good life is a happy one consisting of intrinsically excellent activities like contemplation.' (Aristotle)

B
BASIC FACTUAL, PHILOSOPHICAL, THEOLOGICAL, PREMISES
e.g. 'To achieve the good life we must cultivate dispositions such as moderation, practical wisdom, and a knowledge of mathematics, physics and philosophy.' (Aristotle)

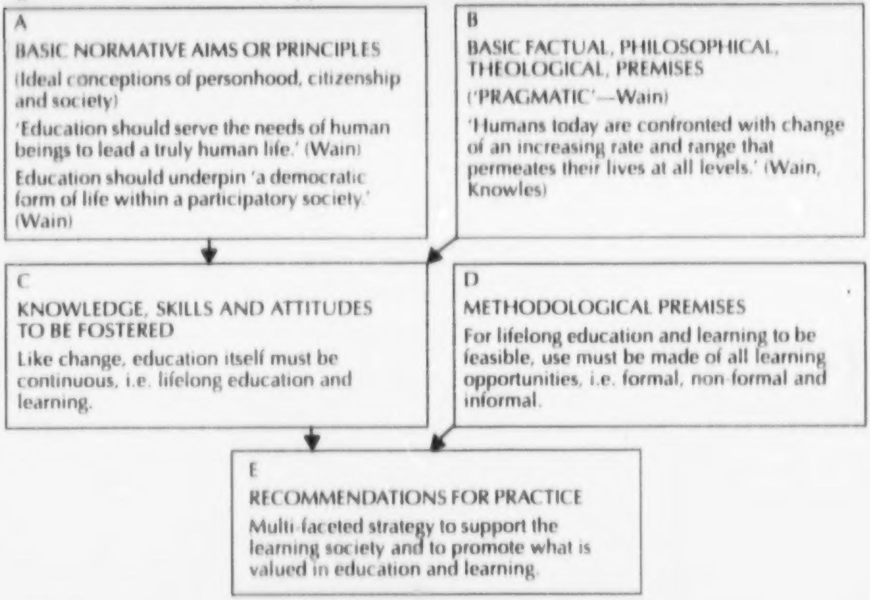
C
KNOWLEDGE, SKILLS AND ATTITUDES TO BE FOSTERED
e.g. Mathematics, physics and philosophy; moderation and practical wisdom.

D
METHODOLOGICAL PREMISES
e.g. 'Method X is necessary, effective or helpful for teaching Y' (where 'Y' stands for something in Box C).

E
RECOMMENDATIONS FOR PRACTICE
e.g. Recommended teaching methods, curriculum content, administrative procedures, etc.

33

Figure 2: Frankena's model applied to Wain's theory of lifelong education



A

BASIC NORMATIVE AIMS OR PRINCIPLES

(Ideal conceptions of personhood, citizenship and society)

'Education should serve the needs of human beings to lead a truly human life.' (Wain)

Education should underpin 'a democratic form of life within a participatory society.' (Wain)

B

BASIC FACTUAL, PHILOSOPHICAL, THEOLOGICAL, PREMISES

('PRAGMATIC'—Wain)

'Humans today are confronted with change of an increasing rate and range that permeates their lives at all levels.' (Wain, Knowles)

C

KNOWLEDGE, SKILLS AND ATTITUDES TO BE FOSTERED

Like change, education itself must be continuous, i.e. lifelong education and learning.

D

METHODOLOGICAL PREMISES

For lifelong education and learning to be feasible, use must be made of all learning opportunities, i.e. formal, non-formal and informal.

E

RECOMMENDATIONS FOR PRACTICE

Multi-faceted strategy to support the learning society and to promote what is valued in education and learning.

General theories of workplace learning

In this section various theories that appear to have something relevant to say about workplace learning will be discussed and analysed in terms of the Frankena model. The theories to be analysed are:

- experience-based learning
- Dewey's theory of learning
- the Argyris and Schön work on professional practice
- the Marsick and Watkins theory of informal and incidental learning
- the 'Generic skills and economics' perspective—Carnevale, Berryman

Experience-based learning

'Experience-based learning' is a term that has many meanings in the literature. Indeed, as Usher (1993) has pointed out, the notion of 'experience' is itself one whose meaning is not particularly standard. Usher suggests that 'experience-based learning' ranges from everyday learning from experience, which usually passes unnoticed, to experiential learning which is part of a highly selective and refined discourse. This variety of meanings of 'experience-based learning' has been widely acknowledged. According to Weil and McGill (1989) there are four main emphases (or 'villages') for experiential learning. These are:

1 The assessment and accreditation of prior experiential learning

2 Experiential learning to change higher and continuing education

3 Experiential learning to change society

4 Experiential learning for personal growth and development

Each of these positions, as described by Weil and McGill, can be viewed in terms of the Frankena model as follows:

1 The assessment and accreditation of prior experiential learning

Box A: Equity and efficiency demand that all valid learning be accredited.

Box B: Most learning from experience has not been accredited.

Box C: Ways of accrediting learning from experience need to be supported.

Box D: Clear identification of learning outcomes enables the accreditation of prior experiential learning.

Box E: So processes that document learning outcomes, such as portfolios, need to be promoted.

2 Experiential learning to change higher and continuing education

Box A: Learning from experience is a highly valuable form of learning.

Box B: Learning from experience typically has not been valued and used as a resource for further learning in formal education.

Box C: Ways of recognising the value learning from experience and using it as a resource for further learning need to be built into formal education.

Box D: Learning methods that are active, meaningful, and relevant to 'real life' agendas enable learning from experience to be effectively incorporated into formal education.

Box E: So the various learning methods that are active, meaningful, and relevant to 'real life' agendas need to be promoted in formal education.

3 Experiential learning to change society

Box A: Personal and collective empowerment are ultimate educational goods.

Box B: Appropriate learning from experience is fundamental to the creation of personal and collective empowerment.

Box C: Appropriate learning from experience should be basic to education that is genuine education.

Box D: Critical dialogue and participation are essential for learning from experience to be genuinely empowering.

Box E: So critical dialogue and participation need to be implemented in education.

4 Experiential learning for personal growth and development

Box A: Personal growth and development is an ultimate educational good.

Box B: Learning from individual and interpersonal experience is fundamental to personal growth and development.

Box C: Appropriate learning from individual and interpersonal experience should be basic to education that is genuine education.

Box D: Various group methods are effective for creating learning from individual and interpersonal experience that leads personal growth and development for individuals.

Box E: So such group methods need to be employed in genuine education.

Some comments and comparisons on the four positions described by Weil and McGill follow.

Support for the Weil and McGill analysis of experiential learning into the four positions comes from Boud (1989). Boud identified and discussed four main traditions in adult learning which can be closely linked to the Weil and McGill 'villages' as analysed above. In particular, they can be linked to the respective contents of Box D in the above analyses. The four main traditions in adult learning according to Boud are:

1 Training and efficiency in learning

2 Self-directed learning and the andragogy school

3 Critical pedagogy and social action

4 Learner-centred education and the humanistic educators

It is noteworthy that in the first two Weil and McGill positions, Box B presents a deficit in the formal education system that needs remedy. Not so in the other two positions which tend to view formal education systems with suspicion and see a need to operate outside of such systems.

However, most importantly for present concerns, each of the four positions, as described by Weil and McGill, can be seen as clearly relevant to the project of understanding workplace learning. Amongst other things, the first raises the role of the recognition of on-the-job learning in formal courses of various kinds. The second relates, e.g., to the role of experiential learning in post-school vocational preparation courses, e.g. work placements, practicums, internships, etc. The third, which refers to the work of Freire, Mezirow, and other writers, focusses on experiential learning for social and political change. While this may not be perceived by some as a prime concern of workplace learning, this perception is wrong. For example, such learning is, in fact, basic in occupations that aim to bring about changes in social behaviour. Thus experiential learning for social and political change is highly relevant for welfare workers, AIDS professionals, etc. Finally personal growth and development are obviously major components of job satisfaction irrespective of the nature of the occupation. The fact that each of the four Weil and McGill positions is relevant to an understanding of workplace learning, even though each of the four has a rather different Frankena diagram, serves to highlight the complexity of the phenomenon of workplace learning as an object of study.

So the slippery notions of experience and experience-based learning are important concepts in literature that is relevant to workplace learning. The same is true of the notion of reflection, as the next theories to be considered demonstrate. In addition, it is very common in the literature to find a close connection being posited between experience and reflection. For example, in the writings of Boud and his co-workers (1985, 1990, 1991, 1993) reflection of various kinds is proposed as the means by which assorted types of experience is turned into learning. Likewise, as discussed below, Marsick and Watkins employ both experience and reflection as major concepts in their theory of informal learning. However Dewey seems to be influential source of the idea that reflection is crucial in workplace learning, hence we turn next to his theories.

Dewey

In order to understand the various theories of workplace learning, it is important to gain some grasp of the range of connotations for the term 'reflection' in this literature. A wide range of connotations for the term 'reflection' is evident in Dewey's writings. For Dewey, the overriding principle is that the good life for humans is one in which they live in harmony with their environment. But because the environment is in a state of continuous flux, so humans need to grow and readjust constantly to it so as to remain in harmony with it. Thus, for Dewey, education must instil the lifelong capacity to grow and to readjust constantly to the environment. Since, argued Dewey, reflective thinking as well as inquiry, democracy, problem solving, active learning, experiential learning, etc. are methods that are necessary for humans to learn to readjust effectively to the environment, these are the teaching/learning methods that must feature in education. Dewey argues that reflection is central to effective inquiry and problem solving, but this should not be seen merely in narrowly rational terms. For Dewey, reflective thinking is more holistic, incorporating social, moral and political aspects of the contexts in which it occurs. This is why Dewey's influence in formal education has actually been rather less than has often been claimed. The structure of formal schooling has ensured that the reflective thinking that is encouraged in the classroom is restricted to a very narrow range of learning contexts. Hence, the chronic problem of students' inability to connect their learning with the broader range of life's contexts. While workplace learning itself also occurs in a restricted range of contexts, this range is still very much wider than what is available in the classroom. Thus, I would argue, many of the reflection-based theories about workplace learning that have been proposed in recent years, whether consciously or not, could be said to present a significantly Deweyan perspective on the matter.

However, Dewey's holistic view of human growth and its accompaniments, such as reflective thinking and problem solving, has attracted critical attention over the years. Bertrand Russell was responsible for a particularly influential critical exchange with Dewey[1]. For Dewey the starting point of inquiry is a problem situation. But given another key Deweyan principle, that of the continuity of nature, Russell argued that any aspect of the universe is potentially a part of a problem situation. Hence, he concluded, Dewey's holism commits him to the view that a problem situation can embrace no less than the whole of the universe. In which case, the theory of problem situations would have little explanatory value. As Burke (1994) argues, Dewey does have a way of limiting the size of situations. Nevertheless, Russell has here pointed to a general and recurring difficulty for holistic theories. The sheer complexity and range of factors involved in any situation under investigation are liable to render that situation rather unique. Hence it becomes difficult to say anything general about situations except in very broad terms.

Perhaps this is a reason why so many of Dewey's works are viewed by readers as abstract and difficult. Certainly workplace learning appears to be a phenomenon that involves a very complex and diverse range of factors. Could this be a reason why no adequate and generally accepted theory of it has yet emerged?

This complexity is reflected in boxes D and E in the analysis of Dewey's theory. In box D only some of the words that characterise the methods recommended by Dewey have been included. An attentive scan of his writings would expand this list considerably. Then there are the overlaps and interconnections of the various teaching/learning methods. So even without taking account of the considerable variations introduced by the particularities of changes in contexts and cultures, it is difficult to say anything very specific about teaching/learning methods in box E.

Dewey's theory can be viewed in terms of the Frankena model as follows:

Box A: The good life is one in which humans live harmoniously with their environment.

Box B: The environment is in constant flux, so humans need to grow and readjust constantly to it so as to remain in harmony with it.

Box C: Education must instil the capacity to grow and to readjust constantly to the environment in order to remain in harmony with it.

Box D: Inquiry, democracy, problem solving, active learning, reflective thinking, experiential learning, etc. are methods that are necessary for learning to readjust effectively to the environment.

Box E: So, teaching/learning methods, curricula and administrative procedures that feature inquiry, democracy, problem solving, active learning, reflective thinking, experiential learning, etc. are recommended.

Argyris and Schön

Schön is, of course, best known for having drawn attention to the inadequacy of widespread 'technical rationality' assumptions about the preparation of professionals (1983, 1987). His proposed alternative epistemology of professional practice centres on the 'reflective practitioner' who exhibits 'knowing-in-action' and 'reflecting-in-action'. Knowing-in-action is tacit knowledge in that though practitioners know it, they cannot express it. According to Schön, knowing-in-action is underpinned by 'reflecting-in-action' or 'reflecting-in-practice'. This spontaneous reflecting is variously characterised by Schön as involving practitioners in 'noticing', 'seeing' or 'feeling' features of their actions and learning from this by consciously or unconsciously altering their practice for the better. This theory of reflection obviously has something to say about workplace learning. However, the existence of this type of reflection has been strongly questioned by Beckett (1996). Ultimately, I think that Schön's reflective practitioner work is clearer about what it is against than what it is for. Rather than pursue this line of thought further, I will turn to Schön's joint work with Argyris which I think offers a more interesting account of workplace learning anyway.

While the work of Argyris and Schön (1974, 1978) has some obvious links with experience-based learning, as well as with other reflection theorists, it is certainly distinctive enough to warrant separate treatment. One reason for this is that confronted by the sheer complexity and diversity of the factors that can influence workplace learning, a situation that we noted posed problems for Dewey, Argyris and Schön have responded by placing their emphasis on particular factors that they believe are especially influential in workplace learning. For instance, they highlight the importance of non-routine circumstances for stimulating significant workplace learning. They suggest that it is the non-routine that forces workers into the kind of reflective thinking that changes beliefs, values and assumptions. They characterise such learning as 'double loop' in contrast to 'single loop' learning in which a problem is solved using the worker's existing system of beliefs, values and assumptions. Argyris and Schön have also investigated the types of organisational climate that are conducive to double loop learning. In doing so, they draw attention to the notion of professional judgement and the means by which it is formed.[4] In explicating different types of organisational climate and the key variables that create them, Argyris and Schön, show more promise of perhaps dealing effectively with the complexity of workplace learning than do rival theories. Applications of this work, e.g. Walker and Halse (1995), warrant further investigation.

While the major focus of the Argyris and Schön writings is on the CDE pattern of the Frankena diagram, there are enough hints to tentatively complete the ABC pattern. Their proposals go something like this:

Box A: Ultimate educational goods are the human desires for 'a sense of competence and a need to be effective'. (Argyris & Schön 1974, p.x)

Box B: The capacity to actively shape the world in ways that monitor and creatively respond to the effects of one's own creative shaping is fundamental to personal competence and effectiveness.

Box C: 'All human beings need to become competent in taking action and simultaneously reflecting on this action to learn from it.' (Argyris & Schön 1974, p.4)

Box D: Double loop learning is crucial to improved practice.

Box E: So organisations need to be structured in ways that enhance double loop. (The Argyris and Schön 'Model 2' structure).

The Marsick and Watkins theory

As mentioned above, Marsick and Watkins, workplace learning theorists who use experience and reflection as major concepts in their well known analysis of 'informal learning', and its supposed sub-set 'incidental learning'. They also openly acknowledge their debt to Dewey (Marsick & Watkins 1990, pp.16–17). It is noteworthy that for Watkins and Marsick informal and incidental learning includes such diverse notions as 'learning from experience, learning by doing, continuous learning for continuous improvement, accidental learning, self-managed learning or the learning organisation'

(1992, p.287). They also describe a series of 'characteristics' of such learning as well as 'conditions that delimit or enhance' it. These include (Marsick & Watkins 1990, pp.24–31). 'Defining characteristics' of informal learning, according to Marsick and Watkins (1990, pp.15–24) include that it is 'experience-based, non-routine and often tacit'. Delimiters include problem framing capacity and intellectual ability. Key conditions which enhance the effectiveness of such learning are 'critical reflectivity', 'proactivity' and 'creativity'. The importance of specific contextual factors is also acknowledged. As Marsick and Watkins expand on the factors that they believe underpin the various defining characteristics and key conditions which they claim promote effective informal learning, they provide a fine illustration of the point made above about the sheer complexity and diversity of this range of factors. Symptomatic perhaps of this complexity difficulty is the fact that seemingly by 1992 Marsick and Watkins had ceased to believe in their earlier 'characteristics' vs. 'conditions' distinction. Though the various characteristics and conditions are still listed as 'elements . . . in theory-building' (1992, p.293), they are no longer distinguished into these two categories.

All five boxes of the Frankena model are explicitly represented in the work of Marsick and Watkins as follows:

Box A:	Businesses need to 'survive and flourish'.
Box B:	'[R]adical changes in the global market-place . . . have pushed many organisations to work, organise, think and learn in very different ways'.
Box C:	Effective 'informal and incidental learning' characterised as experience-based, non-routine and often tacit.
Box D:	A series of conditions delimit or enhance informal and incidental learning.
Box E:	Control limiters and encourage enhancers.

The 'Generic skills and economics' perspective—Carnevale, Berryman

Historically, there has been a one-sided view of what characterises training, a view that has traditionally emphasised such conceptions as 'mindless doing', 'robot-like', and 'a monkey could do it'. This view sharply separates knowing from doing. However, it was always a caricature with respect to many jobs and this has increasingly become the case for the vast majority of today's jobs in post industrial societies such as Australia. Thus, the clear trend in current training is to emphasise the importance of knowing as well as of doing. Amongst other things, this is so because of the increasing changes to work which have generally increased its complexity. These trends have been accelerated by the spread of microelectronic technology.

After providing a critical overview of the methods employed to identify skill requirements of contemporary and future workplaces, Berryman (1993) offers an account of the sub-class of these skills which it is plausible to claim are a responsibility of schooling. Thus Berryman is concerned with learning for the workplace rather than learning in the workplace. However, the skills that she claims that schools should develop can be read as requirements for effective workplace learning to occur.

Berryman's skills list for schools, which is essentially generic, includes reading and quantitative skills, higher order cognitive thinking skills, and various interpersonal skills. Some overlap between this list and the Australian Mayer key competencies is evident. Berryman's list also supports work by Carnevale and his colleagues e.g. Carnevale et al. (1993).

A tempting project, flowing from the above considerations, is to identify the generic skills mix needed for a given occupation and to use it to underpin workplace learning arrangements within that occupation. Tempting as this idea might be, it gains little support from research. Recent work by Stasz et al. found that:

> *. . . whereas generic skills and dispositions are identifiable in all jobs, their specific characteristics and importance vary among jobs. The characteristics of problem solving, teamwork, communication, and disposition are related to job demands, which in turn depend on the purpose of the work, the tasks that constitute the job, the organisation of the work, and other aspects of the work context.* (1996, p.102)

Thus, even within the same occupation, job demands can vary so much between different companies that it makes little sense to try to specify the exact generic competency mix for a particular occupation. Similar findings emerged from recent Australian research on the role of key competencies in the workplace (Gonczi et al. 1995; Hager et al. 1996). Thus we have further support for the 'extreme complexity of workplace learning' thesis which has been gradually emerging as the various authors have been discussed.

Overall, the generic skills view can be seen as a contemporary attempt to implement Dewey's ideas in schools. While this is to be commended, the view is probably too remote from actual workplaces to be of much help in developing a viable model of workplace learning.

Berryman's work, which is typical of a generic skills and economics perspective, explicitly covers all five boxes of the Frankena model as follows:

Box A:	Education has diverse aims one of which is the development of human capital needed for a flourishing economy that is essential to give citizens their desired standard of living.
Box B:	In a rapidly changing world successful and competitive enterprises require workers who have certain broad generic skills.
Box C:	Reading and quantitative skills, higher order cognitive thinking, various interpersonal skills.
Box D:	Cognitive apprenticeship centred on a community of learners that includes both novices and experts is most conducive to development of these generic skills.
Box E:	So schools should move to teaching and learning based on cognitive apprenticeship centred on a community of learners that includes both novices and experts.

Common and emerging themes from the theories considered

From comparing the above analyses, the main commonalities and differences under each of the five Frankena categories can be summarised as follows:

Fundamental goals

Two main types of fundamental goals were evident:

1. Those that refer to the overall flourishing of human beings, e.g. 'personal growth and development is an ultimate educational good'.
2. Those that refer to the needs of the economy, e.g. 'the development of human capital needed for a flourishing economy'.

These reflect a basic dilemma. Is learning for work or work for learning what should be the central focus? This is, of course, the vocational/general dichotomy revisited. It is only a dilemma if the two types of fundamental aims are necessarily in conflict. Berryman suggests that they are not. However, in the real world of limited resources, time available, etc., I would maintain that they will often be in conflict.

Basic assumptions

There was a variety of basic assumptions. Probably the two main ones are:

1. Learning from experience is fundamental to individual personal growth and development.
2. In a rapidly changing world successful and competitive enterprises require workers who have certain broad generic skills.

These also reflect the dilemma noted under A.

Knowledge, skills and attitudes to be fostered

There was predictable variety here including: learning from experience, reflecting on action, reading and quantitative skills, higher order cognitive thinking, various interpersonal skills.

Strategies helpful to the KSA acquisition

This category covered much of the range of strategies found in the literature.

Recommendations for practice

Once again there was great diversity here.

Some issues to be considered

To what extent are Frankena's categories relatively independent? While there is obviously some connection between, and therefore restriction on, what goes in the five 'boxes', to what extent, e.g., might the CDE pattern for one particular fundamental goal be appropriated for use with a different fundamental goal?

The Stephen Billett summary chapter on the findings of the cognitive and sociocultural approaches to workplace learning in the psychological literature appears to me to focus on the of CDE part of the Frankena model. This is so because the discussion centres on learning and what promotes it or interferes with it. Perhaps this work will assist in reaching more agreement in those areas in which the authors that I have discussed disagree most, i.e. the CDE part of the model.

Limitations/criticisms

The notions of 'reflection', 'experience' and 'experience-based learning' are all widely used. But they are all ambiguous, meaning different things to different authors. This links into a wider issue of the sheer complexity and diversity of the range of factors that appear to be relevant to workplace learning. This is evident even from the relatively limited range of literature discussed in this chapter. Confronted with this situation of complexity and diversity some theorists have placed their emphasis on particular factors that they believe are especially influential in professional learning. For instance, Argyris and Schön highlight the importance of non-routine circumstances for stimulating significant experiential learning. They suggest that it is the non-routine that forces professionals into the kind of reflective thinking that changes beliefs, values and assumptions. Of the literature discussed here, their work looks to be the most promising for future researchers to pursue further. However the following summary is proposed as the relatively agreed principles that follow from this literature.

The preceding discussion has surveyed some main theories that promise to help to advance our understanding of informal workplace learning. Overall, it can be said that while these various theories all have something to offer, none of them thus far seems to have gained sufficient successes to be accepted as the dominant theory.

Informal workplace learning	**On-the-job training**
learners in control	trainers in control
often unplanned	planned
no formal curriculum	formal curriculum
or prescribed outcomes	prescribed outcomes
learning outcomes	learning outcomes
unpredictable	predictable
learning often implicit or tacit	learning largely explicit
emphasis on learning and the content of training	emphasis on training and the learner
learning often collaborative and/or collegial	focus on individual learning
learning is highly contextualised	training is partly contextualised
learning as seamless know how	learning as knowledge to be applied in practice
learning as development of competence or capability with no knowledge/skills distinction	learning knowledge seen as more difficult than learning skills

However a number of fairly clear principles about informal workplace learning can be drawn from this work as a whole. These informal workplace learning principles are contrasted above with the equivalent principles about formal on-the-job training. Clearly, workplace learning is rather different from typical on-the-job training.

Conclusion

At the start of this chapter, several central questions were posed. Brief answers to these questions are as follows:

What is workplace learning?

It is a very complex phenomenon which has so far eluded systematic and comprehensive theorisation.

What assumptions do various authors make about the nature of workplace learning?

Many relevant general characteristics, factors and variables have been identified. The relative importance of these depends very much on details of the specific context. An approach like that of Argyris and Schön, which attempts to focus on the more crucial variables, appears to be the most promising way to deal with this complexity.

What conditions promote workplace learning?

For reasons to do with the complexity mentioned in the last answer, no brief answer is possible here.

What conditions limit workplace learning?

Once again, this is complex, as it is so very context dependent.

Endnotes

1 Conveniently collected together in Meyer (1985).
2 Professional judgement is also central to the integrated view of professional competence. (See Gonczi et al. 1990; Beckett 1995; Hager & Beckett 1995; and Hager 1996.)

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4 Understanding workplace learning: Cognitive and sociocultural perspectives

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Stephen Billett

THE AIM OF this chapter is to develop a clearer understanding of workplaces as learning environments, to explore the implications for policy development and to identify areas for further inquiry. To understand workplaces as learning environments, their strengths and limitations, this chapter draws together the contributions of two bodies of literature. Cognitive psychology emphasises the internal attributes of cognition (within the mind), furnishing views about the forms of knowledge required for workplace performance and their development, organisation and deployment. The sociocultural constructivist literature emphasises the influence of social and cultural factors on individuals' construction and use of knowledge. While not claiming these perspectives alone can provide a complete account of workplaces as learning environments, together these theories provide useful insights about:

- the process of learning
- goals for learning
- a basis for understanding how best workplaces can be utilised to develop the knowledge required for workplace performance

While noting their separate contributions, in combination these theories permit further understanding about the relationship between social practice (workplaces) and individuals' thinking and acting (learning and performance). Such complementary contributions are necessary to understand the relationship between workplaces and the construction of vocational knowledge. In doing so, fundamental issues associated with learning and knowledge are addressed in this chapter, which have wider applications than understanding learning in workplaces.

The shortcomings of the views advanced here will inevitably and quite legitimately be raised by reference to other perspectives (McIntyre 1996). For example, socially critical theorists may well challenge as utilitarian the adopted values framework with its focus on workplace knowledge. However, the view of knowledge construction advanced here is held as being a reciprocal process which is individually interpreted and socially mediated. Thus, it advances factors such as individuals' existing knowledge, which is socially constructed, and the reciprocal process of knowledge construction which is conceptualised as a socially influenced and person-dependent epistemology. In doing so, broader social factors such as age, ethnicity, race and gender are inherent in the social practice and are associated with the prospect of access to experiences and guidance in the workplace.

The key premise of this chapter is that workplaces are likely to make particular contributions to individuals' construction of knowledge. Principally, it is through the goal-directed activity of problem-solving in workplaces that knowledge is constructed. Moreover, the construction of knowledge is mediated by the indirect guidance provided by the workplace setting and the direct guidance of other workers and experts. Yet, the review of literature on workplace learning leads to further questions and identifies areas for further inquiry. Issues such as the transferability of knowledge constructed in workpiaces, how best to organise workplace learning and how workplace learning provisions might best be integrated with programs which have both on and off-the-job provisions invite exploration and some useful work has commenced in these areas.

Important policy questions also raised by this discussion include:

- the extent to which general curriculum goals or national core curriculum can address the widely ranging requirements of workplaces
- how approaches to guided learning can be more broadly adopted in vocational education
- whether workplace provisions alone can be relied upon to secure the adaptability and flexibility required for the nation's work force

Equally, evidence about learning in workplaces contributes much to understanding how instruction needs to proceed in vocational education environments (e.g. TAFE colleges, private providers and schools) to develop knowledge that is transferable to workplaces.

Drawing on a review of recent research, this chapter provides an initial orientation to and justification of the two bodies of literature which together form the key focus for analysis. Following this, the topic of workplace learning is examined through three interrelated discussions. The first advances a complementary view, from the two constructivist perspectives, about what learning is and what this means for learning in workplaces. Next, drawing on these same bodies of work, the goals for learning in workplaces are discussed. Following this, evidence about the strengths and weaknesses of workplace learning environments is discussed drawing on a wider but associated workplace learning research literature. Finally, areas for further inquiry and policy issues are identified.

Cognitive and sociocultural perspectives of thinking and acting

As foreshadowed, the cognitive and sociocultural constructivist perspectives have been selected as the focus for this chapter. Together, these theories are most likely to provide informative insights into the relationship between learning and particular types of settings – workplaces. From a constructivist viewpoint, these theories advance the widely held belief that individuals make meaning and construct knowledge. Individuals are not the passive recipients and internalisers of knowledge provided by an external source. Their performance is not the product of biological maturation and decrement. Cognitive psychology provides an account of the construction of individuals' representations of knowledge in memory. These representations are usually categorised as conceptual and procedural forms of knowledge, referred to as cognitive structures. It is these representations which are constructed, organised in memory and deployed in performing both routine and non-routine cognitive activities in workplaces, such as problem-solving, transfer and learning. The effective deployment of cognitive structures in non-routine situations (e.g. novel problem-solving and transfer) within a domain of activity distinguishes experts from novices (Anderson 1982; Ericsson & Simon 1984; Glaser 1989; Gott 1989; Wagner & Sternberg 1986). The recent augmentation of dispositions (values, belief and attitudes) within the existing categories of conceptual and procedural knowledge (e.g. Perkins et al. 1993a, 1993b), more fully accounts for the attitudes and values which underpin how individuals think and act. This augmentation permits a more comprehensive account of knowledge while emphasising its value-laden nature. This inclusion may also deflect some of the criticism from other perspectives.

How individuals think and act is dependent upon how they construct problem spaces the solver's representation of the problem, from which to secure a solution (Chi et al. 1981; Glaser 1984; Newell & Simon 1972). Hence, the cognitive perspective views thinking as a skill (Sternberg 1989), the effectiveness of which is determined 'internally' by the extent and organisation of cognitive structures. With some notable exceptions, such as Gott (1988, 1989) and Greeno (1989), much of the cognitive literature offers explanations of thinking and learning which are disembedded from, and fail to account adequately for the 'lived-in' world, such as workplaces, in which individuals think and act (Lave 1993). Expertise is therefore conceptualised as essentially a cognitive phenomenon (Sternberg 1989) and thinking is treated as a skill. This approach emphasises the utility of internal attributes at the expense of social and cultural contributions to thinking and acting (Greeno 1989). Consequently, this account of representations of knowledge in memory remains incomplete, because it fails to identify sources of these representations of knowledge and how these social sources influence representations or to advance a comprehensive account of how individuals construct knowledge. So while the cognitive literature offers much of worth it needs to be considered together with other literature which addresses these shortcomings.

The sociocultural constructivist perspective through its emphasis on the social source and construction of knowledge best offers these areas of complementarity. The sociocultural perspective is founded on Vygotsky's (1978) view of the socio-historical origins of knowledge and the construction of knowledge through social interaction (Chaiklin & Lave 1993; Rogoff 1990, 1995). This means that the knowledge required for vocational practice has evolved over time and is transformed in different ways by particular social and cultural practice. For example, what is valued in one workplace may not be valued elsewhere. Moreover, in addition to having social origins, the construction of knowledge is also held to be a social act. In this perspective, the contributions to learning from both close interpersonal interactions (Vygotsky 1987) and more distant social and cultural contexts (Scribner 1985b) are emphasised. Indeed it is the reciprocal relationships between individuals and social sources which are the basis for their construction of knowledge (Valsiner 1994). That is, how social settings such as workplaces are interpreted by individuals and how they construct knowledge is not uni-directional, it is reciprocal. For example, when you read a book not only is your knowledge transformed in some way by the book but your view of the book is also transformed.

This view of knowledge construction emphasises the mutuality between the persons who are acting and the social circumstances in which they act. Individuals' learning is not isolated from social practice. This is clearly an important consideration in understanding the consequences of learning in workplaces. However, this perspective is yet to provide a comprehensive account of the different types of knowledge that are constructed or how these are deployed in goal-directed activity. So, whereas separately these constructivist perspectives provide views about the goals and the processes of learning, together they offer a potent and complementary basis for understanding the relationship between the internal processes of the mind and the external sources of knowledge (Billett 1996a).

In the next section, the process of learning is discussed from both perspectives as a basis for proposing how learning in workplaces might be understood best.

Processes of learning: Cognitive and sociocultural views

Within cognitive psychology, problem-solving is central to both the performance of tasks and also the process of knowledge construction (learning). Needless distinctions were imposed between problem-solving and learning within early work in cognitive science (Anderson 1993). Resolving a problem involves utilising cognitive structures to manipulate a response to the problem situation in order to secure a solution. It is this transformational process which is also generative of new knowledge structures. Learning is, therefore, an active, constructive, cumulative and goal-oriented process that involves problem-solving. However, as problems and their solutions are set in social settings (e.g. workplaces), goal-directed activity is shaped by these circumstances which pattern and influence knowledge construction (Billett 1995b; Brown et al. 1989). That is, the sort of activities the workplace provides influence the construction of individuals' knowledge, because workplaces furnish particular types of problems and solutions. For example, decisions about what approach to take with a work task (what happens in a particular workplace) or how well it needs to be done (what counts as a good job) are problem-solving activities which are shaped by the requirements of the particular workplace. Solving these problems has cognitive consequences and there are links between setting and cognition.

There appears to be two kinds of problem-solving activities. Routine problems, which are easily addressed, reinforce existing cognitive structures. Routine problems are well-defined as the variables are known, thus making a solution choice relatively easy. However, if a task is unfamiliar or the goal is unclear this may present a situation which is non-routine. In non-routine situations not all variables are known, including the goals. The response is to recall similar situations from which to establish a basis for decision-making. This requires going beyond what existing knowledge alone can provide. Higher orders of procedures are employed to transform and extend existing knowledge. With routine problems, knowledge is deployed to resolve the problem, requiring little conscious or effortful engagement of individuals' knowledge. For example, many routine components of driving a car such as changing gears can be done without wholly engaging conscious thinking. This is in powerful contrast to the conscious thinking engaged in when first learning this task. Small adjustments or manipulations which require conscious effort may be needed when the existing knowledge is not directly applicable to new situations For example, when driving a different type of car. Responding to non-routine problems is a function of conscious, controlled thinking, and is directly associated with learning new knowledge (Anderson 1993, Shuell 1990) and transfer (Royer 1979). When engaged in everyday workplace activity, these forms of problem-solving both reinforce existing knowledge and extend the knowledge required by the individual for workplace performance. Ongoing problem-solving compiles procedures and chunks concepts. As tasks (problem-solving) are repeatedly undertaken the procedures become automated and linked to other associated procedures (e.g. depressing the clutch and manipulating the gear stick as gears are changed). Equally, as conceptual knowledge is deployed together it becomes richly associated or chunked (e.g. slowing down before changing down gears).

Sociocultural theory enhances the views which are proposed in cognitive psychology about engagement in socially derived goal-directed activities. For instance, engagement in these activities is held to promote the psychological function of the learner (Leonteyev 1981; Martin & Scribner 1991; Scribner & Beach 1993). Everyday activities, and the knowledge needed to be learnt, particularly complex knowledge, such as those occurring in workplaces, have social and historical origins, and have evolved over time, through social practice (Bourdieu 1991; Scribner 1985a, 1985b; Vygotsky 1978; Wertsch 1993). Within this view, learning is seen as a process of appropriating socio-historically derived knowledge. Accordingly, the knowledge that needs to be constructed for vocational practice does not exist without a social and cultural context or without a relationship to past events, other individuals or societal structures (Vygotsky 1987). In particular, it is held that the knowledge is embedded in the activities of a particular workplace (community of practice).

Problem-solving, therefore, is the routine function of everyday thinking and acting including those in workplaces. It is not reserved for learning in educational institutions. The ongoing problem-resolution process smooths and strengthens procedures and permits the 'de-bugging' of problems (Gott 1989) emphasising learning taking place as part of everyday activity. Indeed, everyday thinking and acting may be the very process that distinguishes learning in different settings, such as the school room or workplace and inhibits transfer across these settings. Particular solutions, as well as problems, are likely to be found within workplaces, which means that learning is influenced by the goals (requirements) of particular settings (Brown et al. 1989). Hence, as different types of activities occur in different settings, consequently, the construction and reinforcement of knowledge is likely to be different. For example, consider the difference in what would be learnt about coal mining in a classroom settings compared with what would be learnt at the site of the coal mine. The knowledge structuring activities individuals engage in are likely to be quite different. Moreover, what is an acceptable solution in one workplace may be quite different than what is accepted in another. Therefore, it is likely that there will be different cognitive consequences of participation albeit that the same vocational activity is being enacted (Billett 1995b). For instance, underground coal mining versus open cut coal mines or even open cut coal mines facing different problems (e.g. removal of overburden, quality of coal). Therefore, individuals mediate experiences which are representations of socially structured tasks and tools (Luria 1976) and human action typically involves mediated means, such as the use of tools and language which have social origins (Wertsch 1993) as illustrated above. This implies that even the most apparently solitary activity is socially shaped.

Interpersonal interaction pervades Vygotsky's concept of learning which views knowledge as generated between individuals (inter-psychologically), prior to becoming a component of individuals' intra-personal knowledge their 'representations of knowledge' to use cognitive terminology. The centrality of direct social interaction in Vygotsky's theory (1978, 1987) characterises his concept of the Zone of Proximal Development (ZPD). This concept holds that individuals' development can be maximised through the close guidance of a more expert other (1978). This 'expert other' provides scaffolding which enhances the prospect of learning through a process of guided discovery and joint problem-solving (Wertsch 1985). The intervention of the 'expert other' extends the potential reach of learners' development. The relationship between learners and 'expert others' (e.g. tradespersons/experts and novices, parents and children or teachers and students) is socially determined, influencing the nature of knowledge shared with learners (Goodnow 1986, 1990). This view of learning gives primacy to direct interpersonal or proximal guidance such as the guidance occurring in workplaces provided by others and expert others.

As well as proximal guidance there are more indirect or distal forms of social mediation, such as social structures, the nature of social groupings, societal organisation and activities (Cazden 1993; Scribner 1985a). Factors including age, ethnicity, gender and race all have social and cultural dimensions which influence access to and participation in social practice (e.g. Belenky et al. 1986; Goodnow 1990, Goodnow & Warton 1991; Verodonik et al. 1988). Some of these mediating factors influence proximal interaction. For example, social influences will determine what knowledge skilled workers share with novices (Goodnow 1990; Moore 1986). Withholding information by experts might be in consideration of novices' limited experience and understanding, and the knowledge being outside their ZPD. Alternatively, withholding information might arise due to issues of privilege (Goodnow 1990), such as the desire to maintain status in an expert-novice relationship or to exclude certain groups or individuals. For example, it might be the opinion of the 'expert other' that individuals of a particular gender or ethnicity would not be suitable for particular tasks, so their access to important occupational knowledge may be withheld. Another problematic aspect of interpersonal relationships is displacement, as novices move to partially and then wholly replace experts (Lave & Wenger 1991) which may well inhibit interaction, particularly if there is uncertainty about the learner's/expert's standing in the workplace (e.g. continuity of employment).

Forms of distal guidance are also potent on their own terms. Observation and listening, the physical arrangements of workplaces, their organisation (Scribner 1985a), priorities and privileging of activities which are experienced in the workplace may also result in the purposeful limitation of activities in the construction of knowledge (Billett 1994; Brown et al. 1989). The physical environment influences and assists thinking and acting as Lave et al. (1984) and Scribner (1984) have found. Equally, Lave's (1990) work examining how tailors' constructed knowledge indicated that the activities apprentices engaged in were guided and informed by other apprentices, such as the sequencing of tasks which different types of garments required. Both proximal and distal guidance provide access in different ways to socioculturally determined knowledge which is then appropriated by learners.

The appropriation of knowledge by individuals does not lead to an identical understanding or common organisation of that knowledge (Newman et al. 1989). Appropriation resides within individuals' interpretative constructions and the mediation of social practice. A key determinant of appropriation is the knowledge previously developed through individuals' socially determined personal histories. As Lave (1993, p.15) suggests, 'if we assume that different people in the same situations . . . know different things and speak with different interests and experiences from different social locations', then uniform outcomes are improbable. Appropriation within this chapter, therefore, has a broader meaning than the mere internalisation of externally derived sources of knowledge. Instead it refers to the individualised process of constructing knowledge from social practice and the structuring of that knowledge, initially, in idiosyncratic ways. However, through the ongoing negotiated process of knowledge construction (routine and non-routine problem-solving) in social circumstances, such as workplaces, greater congruence is secured (Newman et al. 1989; Pea 1987).

In this section, it was advanced that due to complementarity between the cognitive and sociocultural perspectives it is possible to articulate a view that learning which emphasises engagement in goal-directed activity, embedded and guided within social practice, such as workplaces, is the process by which individuals construct knowledge.

Goals for learning in workplaces: Cognitive and sociocultural perspectives

A clear understanding of the forms of knowledge required for workplace performance makes it possible to advance recommendations about goals for learning and how arrangements for workplace learning should proceed. In this section these goals are identified and discussed. The goal for learning within cognitive psychology is the acquisition of the knowledge required for expert performance. In the case of learning in workplaces this refers to the development of knowledge structures that will permit expert practice in the workplace. Over a 30 year period, cognitive science has sought to secure a comprehensive account of complex human performance or expertise (Glaser 1984, 1990) largely based on investigations of expert and novice differences. In doing so it has identified a series of attributes which characterise expert performance. These attributes include, the possession of a large body of highly structured and organised domain-specific knowledge, the ability of experts to alternate between different forms of knowledge, and a capacity to apply existing knowledge to novel situations, such as problem-solving and transfer (Chi et al. 1985; Chi et al. 1982; Glaser 1984; Gott 1989; Sweller 1989; Wagner & Sternberg 1986). Some key clusters of expert characteristics, identified through this work, are:

- effective categorisation of problems
- monitoring of problem resolutions
- compilation of procedures and chunking of concepts
- correct diagnosis of problems using principles
- selection of effective solution strategies (Billett 1995b)

These attributes are the outcomes that need to be secured to enable performance in work activities. The clusters of characteristics are now elaborated upon to investigate the way they can inform goals for workplace learning.

Firstly, the breadth and organisation of experts' knowledge allow problems to be categorised by their means of resolution (Chi et al. 1981; Gott 1989; Sweller 1989). Essentially, experts see different problems from novices (Charness 1989; Gott 1988), who may respond only to the surface features of the problem (Sweller 1989). Secondly, experts' categorisations are assisted by active monitoring, involving the testing and refining of selected responses to a problem (Alexander & Judy 1988; Owen & Sweller 1989; Voss et al. 1983). This monitoring is also premised upon a rich knowledge base, enabling the progressive evaluation of responses to problems and the evaluation of alternative strategies (Glaser 1990). Judgments about the difficulty of problems are enabled by this monitoring, thereby permitting the apportionment of time, assessment of progress and prediction of outcomes of that progress (Chi et al. 1982; Larkin et al. 1980). Consequently, extensive routine and non-routine problem-solving within workplaces is required to develop the knowledge for expert performance.

Thirdly, as a result of extensive experience, experts apply cognitive processes instantaneously using compiled procedural knowledge and chunked conceptual knowledge in ways that allow familiar goals to be accomplished 'automatically' without having to deploy conscious thinking (Ericsson & Simon 1984; Sweller 1989). In this way, compilation and chunking frees the working memory to concentrate on unfamiliar components of problems. Conversely, novices need to engage in conscious thinking, thereby restricting their thinking and acting to those activities that experts perform with little conscious thought or effort. Fourthly, experts' conceptual knowledge enables consistently correct diagnoses in response to ill-defined or non-routine problem situations because the deployed knowledge is richly associated (Gott 1988; Lesgold

1989). Differences between experts and novices are evident in response to problem situations (Gott 1988; Lesgold 1989). Experts extend their knowledge to address gaps in the available information, consistently producing more useful solutions than novices, and are also more efficient with their solution search (Anderson 1982). Moreover, the knowledge base of experts is organised around salient principles associated with the domain of activity in which they have engaged.

Finally, experts' cognitive processes are debugged through extensive learning experiences (Ericsson & Simon 1984; Glaser 1990; Gott 1988, 1989), which hastens access to the cognitive structures required for both routine and non-routine tasks. Hence, this ongoing practice debugs procedures. When faced with non-routine problems, novices usually do worse than experts, as novices are unable to fall back on the systematic and conscious solution search used by experts (Glaser 1990). Experts use goal-directed and tightly-focussed searches of their knowledge base to secure goals, deploying specific reasoning strategies such as stating arguments, seeking qualifications, using analogies and problem-solving strategies and rebutting counter-arguments (Gott 1988; Voss et al. 1983). Because of its domain-specificity, this search may be unavailable to novices. These attributes emphasise the importance of a well organised body of domain-specific knowledge, which is constructed overtime through ongoing problem-solving of both a routine and non-routine nature.

It is the ability of learning environments to provide experiences which can assist the learner secure these attributes through ongoing goal-directed activity which will enable success with non-routine problem-solving which is a key goal for vocational learning. It is evident from the above, that ongoing experiences over time, which include both routine and non-routine problem-solving, are necessary to develop the attributes of experts.

Ideas associated with expertise within cognitive psychology reside within a concept of domains of knowledge usually associated with a body of academic knowledge held as a long-standing truth (Prawat & Floden 1994). However, current views suggest that expertise is situated and embedded in particular situations. From the sociocultural perspective, levels of social practice need to be considered to understand the situated and embedded nature of thinking and acting. To accommodate the contributions of particular social practice (e.g. workplaces) it is proposed that the sociocultural (Scribner 1985b) and community of practice (Lave & Wenger 1991) levels of social practice are important for understanding workplace learning.

Sociocultural practice (Scribner 1985b) embodies a set of norms and practices for vocational practice such as those conducted by motor mechanics, electricians, youth workers and hairdressers. These norms guide practice and establish expectations for practitioners in these vocations. This level of social practice furnishes sets of concepts and procedures associated with vocational practice and how it should be conducted. It thus provides both general and specific goals for performance and, hence, learning. The application of sociocultural technical knowledge across different kinds of vocational practice is likely to vary as the requirements for the applications of vocational activity in workplaces will be different. Hence, at this level the knowledge is disembedded.

Workplaces are good examples of communities of practice – where norms and practices are realised through the application of the vocational knowledge and where individuals' problem-solving occurs. That is, where sociocultural practice is embedded and enacted in a particular workplace. A community of practice is defined as a set of relations among persons, activity and world, over time and in relationship with other tangential and overlapping communities of practice (Lave & Wenger 1991, p.98). Examples are a particular mechanics' workshop or hairdressing salon. The approach to a key goal such as client servicing will take on variations across different mechanics' workshops. An automotive mechanic in a small country town is likely to have different demands than one in a city dealership. At the community of practice level, a range of social factors determines the nature of goals and the means for securing those goals (Billett 1995b). These communities are settings, such as workplaces. It is the process of ongoing routine and non-routine problem-solving within the workplace (community of practice) which results in the appropriation of knowledge.

As a consequence of the different requirements of particular practices, expertise will be conceptualised in different ways across workplaces, even when an activity, apparently similar at the sociocultural level, is being undertaken. For example, a hairdresser, who is an expert in an inner city salon, may lack some of the attributes required to be judged as an expert in a different context. For example, in a suburban salon interpersonal interactions with clients might be as greatly valued as an ability to style hair. This does not mean that expertise is welded to one setting. Rather, expertise is fashioned within particular contexts thus embedding it in social circumstances. Therefore, it is necessary to augment the view of skilful knowledge provided by cognitive psychology with a view which emphasises the situatedness and embeddedness of social practice.

To capture this embeddedness and situatedness, it is necessary to articulate a sociocultural view of expertise to complement that provided by the cognitive perspective. The view of expertise as skilful knowledge, as proposed by cognitive psychology, has been subsumed within this view of expertise. The key elements of this sociocultural view of expertise are its relational, embedded, competent, reciprocal and pertinent characteristics.

In overview expertise:

- is *relational* in terms of requirements of a particular community of practice (workplace)
- is *embedded*, being the product of extensive social practice, with meaning about practice derived over time, and with understanding shaped by participation in the activities and norms of that practice (workpractice)
- requires *competence* in the community's (workplace's) discourse, in the routine and non-routine activities of practice, mastery of new understanding, and the ability to perform and adapt existing skills
- is *reciprocal*, shaping as well as being shaped, by the community of practice, (workplace) which includes setting and maintaining standards
- requires *pertinence* in the appropriateness of problem solutions, such as knowing what behaviours are acceptable (Billett 1995b)

These characteristics of expertise reflect the embedded values of particular workplaces which assign to problems views about the appropriate amount of effort and an understanding of what knowledge is to be privileged in such settings (Moore 1986). So there are situational and important sociocultural aspects of expertise to be accommodated in goals for the acquisition and appraisal of knowledge. Therefore, unless these attributes can be developed in workplaces they are not likely to be useful in those settings or transferred to other settings. So, for instance, a question might be posed about the ability of a particular educational community of practice (e.g. a TAFE college or university) to adequately assist the construction of these forms of knowledge. Such a question is posed not to challenge the legitimacy of those educational settings but to suggest that curriculum intents and practice for those settings are likely to be different from workplace settings. The issue for learning which is embedded in a particular setting, albeit the classroom or the workplace, is the need not only to embed but also to disembed in order to maximise the prospect for transfer. So while arrangements for learning must address the requirements of the particular workplace, effort must be extended to assist knowledge being transferred (disembedded) to other settings.

In this section it was advanced that vocational practice is likely to differ across communities of practice even when the same vocational activity is being practiced. An understanding of expertise should account for the particular workplaces where that knowledge has its origins and is deployed to secure particular goals. Thus, this view of expertise augments the understanding of expertise advanced in the cognitive literature as being the mere skilful use of knowledge. It adds social and cultural dimensions which are manifested in the requirements for performance in a particular workplace.

Defining and characterising workplace learning

Drawing on the discussions above, it is proposed that workplaces can be defined as arenas of activity in which socioculturally determined practice occurs. This practice is shaped by the complex of factors of the particular workplace, referred to as an activity system (Engestrom 1993). Individuals construct knowledge through guided engagement in the goal-directed activities of the practice. Learning occurs through engagement in routine and non-routine activities (problem-solving) which are influenced by a particular community of practice. As the exigencies of the particular workplace provide goals (what is or is not acceptable performance) and activities (shaped by the activity system), these socially determined contributions have cognitive consequences. In this way, working is learning (Billett 1993c).

Beyond engagement in everyday workplace activities, other social factors also influence the construction of knowledge. In recent Australian studies of workplace learning the direct and indirect guidance of social sources and partners are reported to influence the construction of knowledge (Ballenden 1996; Billett 1993a, 1993b, 1994, 1995b, 1996b; Harris & Volet 1996, 1997; Harris et al. 1996a, 1996b; Owen 1995; Volkoff 1996). The direct guidance of others (expert and peers) provides models, mentors and clues about performance. Indirect guidance provided by other workers (e.g. comparing, listening and observing) (Harris et al. 1996a) and the physical environment (the workplace, its tools etc.) (Scribner 1985a) grants access to knowledge through the provision of models, clues, cues and goals. This type of guidance emphasises a contribution to learning that is unlikely to be provided through text books or through engagement in non-authentic activities, such as simulated tasks and those disembedded from practice (e.g. classroom settings).

Strengths of workplaces as learning environments

This section summarises a review of recent literature which examined the qualities of workplaces as learning environments. The knowledge required for expert performance is reported to be realised through engagement in work tasks, close guidance of other workers and experts, and the distal guidance provided by the setting and practice within that setting. These arrangements, when maximised, appear to offer a pathway for the development of knowledge structures that are at least as robust (transferable) as those developed in other settings, including educational institutions (Billett 1994, 1995b, 1996b). Everyday participation in work tasks provides opportunities for learners to generate tentative solutions to tasks and then attempt to secure those solutions. As these procedures are tested and modified it is likely that concepts associated with goals and sub-goals will become deepened through rich associations, linkages and purposeful organisation. Over time, this activity results in the development of a repertoire of procedural knowledge associated with expert performance. For example, indexing to the social environment provides a form of mediation which draws upon the social and cultural contributions (clues and cues) of the particular setting (Brown et al. 1989; Harris & Volet 1997). This activity results in knowledge being constructed, indexed and organised in ways that are purposeful in securing workplace goals, and enhancing the prospect of transfer to other situations and circumstances – particularly those in which similar outcomes occur. It has been proposed that these experiences also have a positive effect on educational programs which integrate on and off-the-job provisions (Harris et al. 1996a, 1996b). Harris and his colleagues found that workplace experiences assisted understanding about the value of knowledge being offered in TAFE environments, including the enhanced independence of learners. It is claimed that students with prior workplace experiences had an effective 'head start' on students who lacked these experiences.

Another development is that with the increased specialisation of workplace knowledge through technological applications and procedures which are uniquely applicable to a particular setting, that the enterprise may be the best (perhaps only) site to develop that knowledge (Harris & Volet 1996, 1997). Equally, with the changes to work practices and the greater discretion being afforded to workers, the workplace provides a positive environment for learning to be integrated into everyday work activities.

Close interaction with expert others is reported as guiding learners' tentative solutions to tasks, securing goals (Billett 1994; Harris et al. 1996a) and engaging in increasingly mature approximations of tasks. Experts are reported as providing the means for achieving task goals, through proximal guidance and more indirect contributions such as access to further practise and increasingly complex tasks (Billett 1993b, 1994, 1995a; Harris et al. 1996a). This proximal interaction is analogous to the modelling, coaching and scaffolding of the approach to learning referred to as cognitive apprenticeships (Collins et al. 1989). The array of the tasks that can be successfully accomplished with the assistance of an expert, which otherwise could not be accomplished by learners on their own is analogous to Vygotsky's ZPD. Indirect forms of guidance available in the workplace also provide sources of supplementary mediation for the construction of knowledge (Billett 1993b, 1994; Harris et al. 1996a). For example, listening to and observing other workers was consistently reported to assist the learner with the conceptualisation and approximations of workplace tasks (Billett 1994). It is proposed that the knowledge secured through workplace learning will be more or less transferable across settings in which the same vocational (sociocultural) practice is conducted.

Limitations of workplaces as learning environments

Despite the reported strengths of workplaces as learning environments, limitations are evident in the effectiveness of workplaces as settings in which to construct vocational knowledge (Billett 1993b, 1994, 1995a, 1996b; Harris et al. 1996b; Owen 1995; Volkoff 1996). Limitations identified in these studies include:

- the construction of inappropriate knowledge
- the access to authentic activities
- possible reluctance of experts
- limits on access to expertise
- the opaqueness of some forms of conceptual knowledge

Inappropriate knowledge

Not all workplace learning will result in individuals securing appropriate forms of knowledge. As stated above, the intended goals for workplace learning experiences are those forms of knowledge required for workplace performance which might include dispositions which are broadly applicable, such as those attributes associated with inclusiveness and tolerance. Inappropriate knowledge, including attitudes and values (e.g. dangerous work practice or exclusionary views about gender/race) may result if they are accessible and promoted in the workplace (Harris & Volet 1996, 1997). Evidence has been provided of concerns about bad safety habits being learnt through workplace learning provisions (Harris et al. 1996b). It is acknowledged that learning usually occurs in circumstances where relationships between participants are unequal (Verodonik et al. 1988; Moore 1986), and workplaces appear to offer no exception. Therefore, the values embedded in workplaces are likely to play a role in determining the types of knowledge that are constructed, what is prized and what is to be de-emphasised. However, such outcomes are not inevitable, because as proposed above, the construction of knowledge is not socialisation or internalisation. However, dominant values of the workplace are likely to be influential.

Concerns have been raised that workplace experiences will result in the development of procedural knowledge while inhibiting the development of conceptual knowledge (Evans 1993; Prawat 1993). Harris et al. (1996a) also note there is sometimes confusion about what is the 'right way' in workplaces. Although evidence from recent studies partially addresses these concerns (Billett 1995a, 1995b) there is the prospect of favouring aspects of in a particular workplace. This problem can be seen to be a major shortcoming of workplace learning. Yet to be fair, this situation needs to viewed in relation to what occurs in other learning environments such as the 'school room'. Firstly, there is a lack of transfer from formal learning settings to other settings (e.g. Scribner 1984; Raizen 1990). Secondly, claims that formal learning settings provide balanced access to the knowledge required for workplace performance are erroneous because these environment are just another type of social practice (Billett 1995b). Thirdly, even in these formal learning settings there are unintended outcomes, some of which might be highly inappropriate, an effect often referred to as the hidden curriculum. So while these issues are important and need to be addressed it would be wrong to see them as problems for workplaces alone, as they are problems for the classroom and the workplace alike.

Access to authentic activities

As the potency of workplace learning is determined by the quantity and quality of guided access to authentic activities, if learners are denied engagement in activities of an increasingly non-routine nature, learning outcomes may be limited. Conversely, there is a danger in learners being asked to complete tasks that are outside of what they can achieve without guidance (beyond the ZPD), which could lead to confusion and reluctance to engage further. This circumstance is likely to be person-dependent. For example, a worker with a low level of literacy may find a task which others could perform with ease, being too 'far'. In addition, unless access to work activities are sequenced to take the novice from engaging in peripheral activities through to increasingly accountable and varying types of tasks (Harris et al. 1996a), there could be limited outcomes for learners (Moore 1986). This concern has led to consideration of the 'learning curriculum' (Lave 1990) by which learning experiences in the workplace need to be structured and sequenced to provide a pathway of activities to take the learner from peripheral to full participation (Billett 1996b, 1996c). It is also important for learners' access to and appraisal of task goals to be included in this mode of curriculum. At least two levels of goals are required to be made explicit. Firstly, goals associated with overall activity completion and, secondly, sub-goals of the particular tasks in which they are engaged. In one study, it was reported that pallet-packers in a warehouse had the experience of accompanying the delivery truck, so they could appreciate importance of how well they packed pallets influencing the prospect of the stock arriving in good order (Billett 1994). Consequently, those activities which allow the learner to access to both the process and the product needs to be included. Therefore, unless the workplace can provide such experiences its contribution to the development of expertise may be marginalised.

Reluctance of experts

Reluctance by experts to guide and provide close interactions with learners may inhibit the outcome of workplace learning. Experts may be reluctant about sharing their knowledge for fear of loss of status (Moore 1986) or even concerns about their own displacement by those whom they have guided and supported (Lave & Wenger 1991). In Japanese corporations, where workplace learning is widely accepted, supervisors' roles include training subordinates. Yet these supervisors are secure because promotion is based on seniority, therefore, they will not be displaced (Dore & Sako 1989). Experts who are not rewarded or fear displacement may be unwilling to provide the important proximal guidance and access to increasingly accountable tasks. In Australia a particular issue is concern about industrial affiliation which results in particular jobs being undertaken by particular groups of workers (Owen 1995). So, for example, a tradesperson may be reluctant to show a non-tradesperson a particular task, if they believe it may jeopardise the tradesperson's interest or be against the interests of the group to whom the individual is affiliated.

Access to expertise

Access to the proximal guidance of experts is likely to be an important factor in workplace learning, therefore limits to its provision are likely to diminish the quality of outcomes (Moore 1986). In a study of coal workers (Billett 1993a), it was claimed that the teachers at a nearby TAFE college lacked an understanding of how work was conducted in coal mines. This was the case even with shared areas of vocational practice such as diesel fitting. The miners reported relying on expertise available in the coal mine and training provided by vendors of equipment. However, even with vendor training the miners valued the knowledge about the equipment, but claimed they knew more about how to use the equipment than the vendor trainers. In another study (Billett 1994), novice staff worked alongside overseas experts during commissioning of a secondary processing plant. In doing so, these workers gained important understandings and insights which allowed them to take responsibility for the plant's operation and an ability to respond to problems which arose during production once the overseas experts had departed. These instances illustrate that access to experiences which helps secure workplace goals is important. Yet it is worth noting that, it is the workplace learner who determines who is a credible source of knowledge (Billett 1994; Volkoff 1996). That is, although a trainer or mentor might be selected by management, it is the learner who determines their credibility.

The quality of interaction between expert and learners is important. If the expert merely tells rather than models and demonstrates, outcomes might be quite weak (Harris et al. 1996a). These researchers also note that experts' expectations may be unrealistic. There is also the issue that expertise may be absent in the workplace. Transfer of knowledge is likely to be quite limited if there are new tasks which require knowledge which is not accessible in the workplace. According to coal workers (Billett 1993a) this is one of the few situations when expertise external to the coal mining community is really valued.

Accessing conceptual knowledge

In two studies (Billett 1993a, 1994) concerns were expressed about the inability of workplace learning activities to secure the depth of understanding required for non-routine work activities. As noted above, Prawat (1993) and Evans (1993) suggests that situated learning may favour the development of procedures over propositions. Moreover, Gott (1995) also doubts the ability of current approaches to apprenticeship learning to secure the conceptual knowledge associated with 'high tech' tasks. Such concerns need to be acknowledged because, as Berryman (1993) and Gott (1995) report, increasing complexity of work activities has resulted in the knowledge requirements for many workplace tasks appearing to be more opaque. A rich conceptual base of knowledge is required for performance in workplaces. Workplace learning studies indicate that, despite the concerns expressed above, propositional knowledge is developed through guided everyday activities in the workplace (Billett 1994; Billett & Rose 1996). However, knowledge which is hidden from everyday workplace activity could be made accessible by expert guidance or instructional strategies, because as Berryman (1993) argues, it is this type of knowledge which is increasingly required for workplace performance. Therefore, close guidance and/or instructional intervention may be required to access and develop knowledge that is opaque and hidden from novices (Gott 1995). Inquiry has commenced into appraising the use of instructional interventions such as questioning dialogues, analogies and diagrams as part of everyday work activity (Billett & Rose 1996).

To overcome the weaknesses of workplaces as learning environments and maximise their strengths, arrangements such those mentioned above, should be considered. Arrangements include: (i) making accessible what might be hidden; (ii) determining a pathway of activities; and (iii) providing close guidance to develop appropriate procedures. Collectively, these can be thought of a being the basis for a 'learning curriculum' for the workplace (Billett 1996b, 1996c; Lave 1990). In addition, the often favoured approach to workplace learning through the provision of text-based learning materials has been shown to have limitations and compares poorly with workers' construction of knowledge through everyday activity (Billett 1995a).

The strengths and limitations of constructing the forms of vocational knowledge required for expert performance have been discussed in this section. In the next section, directions for further inquiry and policy implications are advanced.

Implications for future research directions and policy

The findings of the work reported above provide some initial insights into learning in workplaces. Further inquiry and curriculum development activities are required to address these issues to maximise the potential of workplaces as learning environments. The priority should be to address those factors which maximise the effectiveness of workplace learning arrangements. This includes understanding how to:

- make otherwise hidden knowledge accessible
- determine pathways of activities to take the learner from being a novice to an expert
- provide and maintain close guidance in order to develop appropriate procedures required of expert practice
- determine the best way for learning in workplaces to assist the development of those forms of knowledge required for new and emerging work practice

- identify the best way to accommodate the situated requirements of expertise development into curriculum practice within vocational education
- determine the best way for vocational educators to establish and develop effective workplace learning arrangements
- identify the implications for the assessment of learners' knowledge

Research into learning within workplaces seeks responses to fundamental questions about learning, thinking and transfer which have potential implications for both vocational and general education. These questions include:

- how to determine the degree to which certain forms of knowledge are more welded to particular contexts than others (e.g. the characteristics of transfer from school to workplace—workplace to other workplace?)
- what approaches to learning (e.g. methods, strategies) will maximise the prospect for transfer?
- how to access and construct conceptual knowledge in order to develop expert thinking?
- to what degree is it possible to develop higher orders of procedural knowledge within social practice?

Resolution of these questions will extend understanding of learning through engagement in social practice and have consequences learning in workplaces, as much as any other settings. Possible outcomes include the reappraisal and possible transformation of teaching and learning.

Policy implications arise from this review of the literature. Firstly, government places an emphasis on the learning of vocational knowledge in the workplace for either workplace performance or for the transition from school to work. The findings reported above suggest that, while everyday participation in workplaces is likely to deliver on some educational goals, assistance with structuring workplace experiences will be necessary to maximise its full potential. This structuring needs to reflect the requirements of each workplace focussed on guided learning and the structuring and sequencing of workplace activities. A clear policy goal is to focus on a workplace curriculum and pedagogy not to transfer them directly from educational institutions.

Secondly, the findings emphasise a view of expertise, goals and activities which are workplace specific. Hence, the current emphasis in national core curriculum and national standards needs to be reappraised in the light of the clear depiction of different levels of performance required by different workplaces. There is a need to consider industry-level (sociocultural) goals of a more general kind and provide greater latitude for detail of curriculum goals to be negotiated closer to or at the workplace level (community of practice). Hence, the detailed pre-specified curriculum goals may need to be discontinued in preference for curriculum intents which provide a more negotiated and enterprise appropriate framework, albeit mediated by aims and goals at the industry (sociocultural level).

Thirdly, the emerging emphasis on guided learning rather than didactic teaching has broad consequences for learning in both workplaces and educational institutions. The movement to consider constructivist views is likely to offer a fresh approach to a vocational education system wearied by years of outcomes-focussed competency-based training. Associated with this is the development of the ability of TAFE and other teachers to facilitate the development of the 'learning curriculum' for workplaces. This goal would promote structured workplace learning experiences collaboratively organised by TAFE and enterprises which would enable workplaces to make a significant contribution to the development of the nation's skill base.

Fourthly, within vocational education provisions it is worthwhile considering how authentic workplace experiences can best be integrated into pre-employment programs. Certainly, the sequencing of authentic workplace experiences prior to substitute experiences in the educational could minimise the transfer problem for knowledge constructed in vocational educational settings.

In conclusion, this chapter has considered learning in workplaces and offered to further understanding about workplaces as learning environments. In addition, areas for further inquiry were identified and some considerations for policy issues associated with workplace learning and vocational education were examined. Workplaces clearly have great strengths as learning environments to develop the knowledge required for work performance. However, it would be unreasonable to expect that the full potential of workplaces could be realised without addressing factors which limit effectiveness. Although inevitably there is further work for research, work undertaken to date provides some useful contributions for both policy and practice in vocational education.

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5 Management learning: Research survey

David Beckett

What do we know about managerial learning . . . And how do we know it?

> *'Now what I want is, Facts . . . Facts alone are wanted in life . . . You can only form the minds of reasoning animals upon Facts: nothing else will ever be of service to them . . . Stick to the Facts, sir!'*

GRADGRIND IS QUITE clear on this, and quite wrong. Of course, after this first page, Dicken's novel *Hard Times* is a classic tale of *why* Gradgrind is wrong: he fails to recognise that the 'minds of reasoning animals' have already been formed and are continually re-formed by experience. Facts, embedded in experience, have some hope of contributing to learning, but, without that embeddedness, they exist only as rote, recalled on social occasions as party tricks. Any examination of what we know about learning has to acknowledge that Gradgrind's world, and his view of learning, is now 150 years *passé*. Certainly, if we examine what we know about managers' learning, we cannot stay with the 'facts', although some are relevant as a point of entry to a more up-to-date discussion.

What do facts tell us about what managers do? Mintzberg (1989) details this in his first chapter, luminously titled, 'The manager's job: Folklore and fact'. The folklore is that managers 'plan, organise, co-ordinate and control'. Mintzberg goes on to say that:

> [t]he fact is *that those four words, which have dominated management vocabulary since the French industrialist Henri Fayol first introduced them in 1916, tell us little about what managers actually do. At best, they indicate some vague objectives managers have when they work.* (p.9) (emphasis added)

Mintzberg's own research findings (or *what we know* about managers) draw this conclusion:

> *Considering the facts about managerial work, we can see that the manager's job is enormously complicated and difficult. The manager is overburdened with obligations; yet*

> *he or she cannot easily delegate his or her tasks.* As a result, he or she is driven to overwork and is forced to do many tasks superficially. Brevity, fragmentation and oral communication characterise the work. *Yet these are the very characteristics of managerial work that have impeded scientific attempts to improve it. As a result, management scientists have concentrated their efforts on the specialised functions of the organisation* . . . (p.14) (emphasis added)

Looking, then, at what managers actually do (the 'facts'), not what they hope to do, nor what their organisational setting (or 'embeddedness') is doing, we can pick up how they learn. Not surprisingly, whilst at work,can managers learn powerfully through experiences which are intense, dynamic, uncertain, and decisional. Like most white-collar jobs, and in particular, professionals' work, managers' work is 'hot action' (Beckett 1996). They share with teachers, nurses, lawyers, surgeons and the like, the heat of the moment where decisions are taken on the run, case by case, and with the nagging doubt that action might be inadequate – superficial, hasty and inappropriate. Given all this, as the very nature of the job, our question then is: what is the *research* basis for managerial learning? To put it more forcefully: what do we know about how managers learn, and how do we come to know it?

A sensible place to look for an answer to this question is amongst the literature on organisations, because managers' work is typically structurally located. Other contributors to this publication will be dealing with organisational and workplace learning as such. Nonetheless, let us adopt, as a convenient entry point, what Mintzberg has identified earlier as the 'specialised functions of the organisation', in the following *Abstract*. The implicit assumption it makes is that if we sort out what learning is going on across an organisation, or between organisations (that is, structurally), we will have explained managers' learning in explaining structures:

> *There has been much recent interest in organisational learning, in the academic management literature and in the business press. This issue is especially salient in firms that operate in rapidly-changing environments and that rely on knowledge workers to make decisions in the face of high uncertainty. Much of the organisational learning literature is based on an organisation-as-brain metaphor and on characteristics of individual learning. This paper uses an organisation-as-culture metaphor to examine how knowledge-workers in bio-technology firms talk about organisational learning. Using content analysis of in-depth interviews with 44 managers, scientists and technicians at four bio-technology firms in Massachusetts, we analyse . . . [etc.]* (Elmes & Kasouf 1995)

This *Abstract* neatly raises the complexities of research into the workplace learning of management (the key aspects are in italics):

- the umbrella concept, congruent with Mintzberg's point about the interest in organisational function, is *organisational learning* (which some of the literature addresses in the term 'learning organisation')
- under that umbrella, daily work life is marked by dynamism, especially decisional dynamism, in '*rapidly-changing* environments'
- such dynamism engages the 'high *uncertainty*' of decision-making
- yet this work life is knowledge-driven, in that '*knowledge-workers*' strive to advance their own and their organisation's learning

So far, with this example, we have an idea of what the writers are seeking. But we can also discern how they intend to seek this: how the 'facts' come to be thus and so. So there are some research assumptions, as follows:

- there exists an 'academic management literature' and a 'business press', so there will be different readerships, and therefore different ways of presenting research
- there is a paradigm of organisational learning based on a metaphor of the 'organisation-as-brain', so we may infer that scholarship in the cognitive sciences (applied psychology, neurophysiology, bio-technology and so on) may be prominent in managerial learning research
- there is an alternative paradigm, based on a metaphor of the 'organisation-as-culture', so we may also infer that scholarship in the social sciences (semiotics, post-structuralism, social theory and so on) may be emerging
- both these paradigms are 'metaphors'—they stand for something significant about the workplace, but they stand as explanatory structures—mapping what is going on
- what is going on is at least initially to be winkled out using 'in-depth interviews' with individuals, namely, '44 managers, scientists and technicians', which indicates that the research findings will be mapped across a range of self-ascribed perceptions of daily work experiences
- yet the varying locations of the individuals interviewed—across four work sites ('firms in Massachusetts') and in three occupations (including managers)—shows an awareness of the context of those individuals' daily work experiences

We have now de-constructed the quotation, and from that and from Mintzberg, we can make general statements about *what* we know, and *how* we know, about managerial learning:

Management workplace learning is a central element within organisational learning, with the special characteristic that it needs to grapple with the generation of a certain sort of knowledge amidst 'hot action'. Managers have to make decisions in the heat of the moment—and these have to be known to be, and shown to be (since there is a leadership element in all this), the right decisions.

Research into management workplace learning will try to get inside the manager's head—to ascertain the cognitive basis for 'hot action' (on one paradigm) or to ascertain the social basis for it (on another paradigm). There may be other paradigms. Research under either paradigm will be contextually-sensitive—that is, will at the very least, give some priority to the significance of workplace cultures and managers' personal histories in framing answers to research questions. These answers may be presented in different ways to different readerships.

These insights equip us to investigate the state of research on managerial learning.

Research amidst fads and paradigms

But what is 'research'? There has been a paradigm shift across the past 40 years or so over the definition of research. The traditional paradigm of objective or 'positivist' knowledge—a world 'out there', to be discovered by sustained systematic scientific method—has been replaced by a new constructivism: researchers are inevitably immersed in their worlds, which are also our, and everyone's worlds. This paper assumes the cogency of sustained, systematic methods of enquiry within a paradigm of social constructivist values, which should cover both 'cognitive' and 'social' research perspectives. Perhaps the major feature of this social constructivism is its considerable *sensitivity to the context of knowledge-claims* (see the philosophy of social science: Winch 1958; Hesse 1978; Outhwaite 1986, 1987; see also qualitative research methodology e.g. Patton 1990; and in organisational learning e.g. Argyris 1992, chs.15-21).

This sensitivity to context shows up in an awareness that the researchers are themselves partly but significantly the constructors of that context. This is an aspect of our topic which we cannot further pursue here. What is crucial is the extent of the recognition by managers themselves of their own 'social constructivism' – their own intimate involvement with the shaping of work environments. This is, after all, essential if you want to stay in business!

It clearly is important to give prominence to the pragmatic immediacy of managers' decision-making within the new globally oriented enterprise. Quick responses to market opportunities are required by enterprises as structures, as well as by the workplace individuals (both the leaders and all participants) who are located – or contexted – within those structures. How then can structures become adaptive to change? In a recent issue of *Harvard Business Review*, an impatience with many recent and innovative structural changes was stated as follows, along with an argument for a retrieval of a certain style of management:

> Many managers felt that the emergence of new managerial ideas during the 1980s signalled the rejuvenation of US business. By readily adopting innovations such as total quality programs and self-managed teams, managers believed that they were demonstrating the kind of decisive leadership that kept companies competitive.
>
> *Off-the-shelf programs addressing quality, customer satisfaction, time-to-market, strategic focus, core competencies, alliances, global competitiveness, organisational culture, and empowerment swept through the US corporations with alarming speed.*
>
> *In the majority of cases, research shows, the management fads of the last 15 years rarely produced the promised results.*
>
> *What accounts for such disastrous results? We believe it is the failure of US management to address its most serious problem: a lack of pragmatic judgement . . . managers rel[ied] on ready-made answers instead of searching for creative solutions . . . [M]anagers must start by reclaiming managerial responsibility . . .* (Nohria & Berkley 1994, pp.128-9)

Leaving unexplored the interesting claim that 'research shows, management fads of the last 15 years rarely produced the promised results', we note an exasperation with what is perceived as managers' pursuit of creativity-as-novelty. Instead, the writers urge a return to a more pragmatic, contextually-sensitive and, ultimately, a more interventionist, managerial style. In our terms, such managers must know that they learn powerfully from the very 'hot action' of their working day.

Culbert (1994) addresses this point well, when, after listing the main popular models of management (marked by 'quality', 'empowerment', 're-engineering', 'diversity', 'cultural change' and the like), he notes that 'each . . . has been field-tested, . . . are conceptually credible, and the result of common sense and imaginative practice blended with theory' (p.3). So: since they all espouse the same principles, namely, teamwork, flexibility, quick responses, vision, shared leadership, trust and so on, just choose a model and press ahead! Culbert goes on to argue this will not succeed unless managers change their 'mind-set':

> *In the new models, management becomes a mind-set technology in which managerial work entails helping people to harmonise their personal and organisational commitments so that, at any moment, their reasoning, decision-making, and actions have integrity for the institution as well as themselves. The new emphasis is on people seeing themselves as system resources, not partisan, turf-oriented, unit advocates or free-wheeling individualistic performers . . . you'll find that only those whose presence enhances and empowers others will be treated as valuable team assets.* (1994, p.8)

Managers themselves are, then, to take on a sensitivity to their own context, so they can draw out their own and others' strengths. This is what is, or according to the literature for practitioners, what should be, going on.

In Australia, the appearance of this new paradigm of social-constructivism (where learning is 'contexted') is implied in the forerunner to the Karpin Report, the NBEET issues paper, *Management training provision in Australia* (1991), where one of the workshop outcomes is stated as follows:

> *In the future, managers and supervisors will increasingly take in the roles of trainer, facilitator, coach and mentor . . . Indeed this change in the role of managers . . . is so profound that it raises the issue of a 'paradigm shift'.* (1991, p.6)

Taking this example of a paradigm shift (correctly footnoted to Kuhn 1962, *The structure of scientific revolutions*) even further, the paper emphasises contextuality as a set of broader socio-economic concerns:

> *The role of workplace learning is an issue which will become increasingly important over the course of this decade. Research is providing more and more compelling evidence that effective management learning must be closely linked to the workplace . . . To gain maximum competitive advantage from developing the skills of employees (including managerial skills), enterprises are likely to change their organisational cultures so that 'learning' and the enterprise's business are productively intertwined.* (1991, p.6)

Both these *Issues* references indicate a priority for the socially located work experiences of managers as the basis for their own learning, and for that of their colleagues or other employees.

It is this sense of 'socially constructed' learning that needs to be underpinned by solid research evidence. Is there any?

Certainly, there is a vast and lucrative market for any insights into managerial learning—professional development journals, normally comprising reports of peer experiences, for busy human resource managers, and ubiquitous and expensive 'guru' seminars, are two examples of this. There is an important and valid interest from practitioners in the latest, 'cutting edge', practice. Such 'business press' literature, and 'grand ballroom' seminars may well generate rigorous research, or may indeed be based on it—but it is not itself typically rigorous research. In what follows, the social construction of managerial learning must include such writing, but it important to see its limitations in research terms, whatever high value it has for practitioners.

Our current concern, then, acknowledges this new 'paradigm' of managers' learning at work: that such work is located on site, and may be non-classroom based, developing skills and roles which require accountability and strategic success. Most important, that *managerial learning principally deals in the very construction of these experiences as learning.* This is the broad context of managers' 'hot action', yet that action is embedded in the organisation-as-workplace. There is, clearly, an element of 'faddism' in all this, because busy practitioners want to be able to capitalise productively on new knowledge in the field. But what research evidence is there for this new paradigm of managerial learning? The most straightforward way to show that is through a snapshot of some bibliographical data-bases.

A snapshot of research: Trawling the literature

On the assumption that research trends in a dynamic fields like organisational and workplace change in general would show up first in journals, five appropriate electronic databases available at The University of Melbourne Library in June 1996 were trawled (see notes, p.88). The procedure was two-stage, as follows:

- Stage one: each data-base was trawled for suitable items, initially using the terms 'organis[z]ation', 'learning' and 'management'. Any items identified via Boolean searching which had any sort of connection with the research topic and its variations were printed and items collated from all data-bases.

  This process produced a total number of ten items remaining for analysis (see section 'literature search'). These were all from *Current Contents*, are all substantial articles, and represent research activity within the topic in Berlin, Stockholm, in the US (in Virginia, Massachusetts, Arizona, Colorado, Illinois, Philadelphia) and in the UK (at Bristol, Lancaster). Stage one, therefore, turned out to be qualitatively quite productive.

- Stage two: each data-base was again trawled, this time using the terms 'workplace', 'learning' and 'management', and then various synonyms. However, many of these items were then dispensed with, since they were too remote from the topic. These, for example, dealt with the management of school-based programs about work, or the management of schooling as a site of work for teachers, or with very specific aspects of workplace education programs such as adult literacy, disability studies, information technology and other 'training'. Where the remaining items appeared on more than one print-out, that is, in about 20 cases, the repetition was deleted. Where a publication was dated before 1990, it was deleted. After all this, a total number of 50 items remained for analysis (see section 'literature search stage two'), these being mainly Australian in origin.

Literature search: Stage one

The ten items identified in stage one were, as we noted above, very helpful in revealing current research activities in organisational learning, all outside Australia, in so far as these involve managerial learning in particular. Each is listed in what follows, and, in each case, parts of the *Abstract* are quoted, where this has relevance for the characteristics of research in the field, identified in our Introduction. Some conclusions are drawn at the end of this section.

Geppert, M 1996, 'Paths of managerial learning in the East German context', *Organisation Studies,* vol.17, no.2, pp.249–268

> *In the debate about organisational or managerial learning, the connection between individual and organisational levels is often not clearly visible . . . This paper empirically examines how managerial learning creates or reduces organisational slack. Such learning is a dialectical process in that the social practices of management are stabilised and/or changed and embedded in special institutional settings. By mean of three different case studies, it will be demonstrated that the processes of organisational learning . . . are tied to specifically institutional conditions.*

Addleson, M 1996, 'Resolving the spirit and substance of organisational learning', *Journal of Organisational Change Management,* vol.9, no.1, pp.unspec.

> *Argues that there are two stands in the organisational learning literature marked by incompatible world views. The dominant substance is modernist while the spirit is interpretive. The focus on systems, in the form of learning loops and systems archetypes, identifies an acceptance of the tenets of modernism. The spirit offers an innovative view of management and contradicts the modernist substance. Drawing on contemporary hermeneutics, the spirit leads to a different conception of the organisation, the role of management, and OL (organisational learning). Organisations comprise communities with different interests and understandings . . . An important role for managers is to facilitate discourse, and OL occurs in communities of discourse.*

French, R & Bazalgette, J 1996, 'From learning organisation to teaching-learning organisation', *Management Learning,* vol.27, no.1, pp.113–128

> *'Organisational learning' and the 'learning organisation' are well established in the literature on organisations, and increasingly in use within organisations as well. They offer important insights for all those involved in organisations and their management. The questions raised in this paper however concern the 'other side' of learning, as a human activity, namely: teaching. We argue that all organisations include experiences and activities which can be described as 'teaching' and 'learning', but . . . teaching has been ignored as an organisational process and needs attention in its own right . . .*

Lillrank, P 1995, 'The transfer of management innovations from Japan', *Organisation Studies,* vol.16, no.6, pp.971–989

> *Learning from organisational innovations and best practices has become common. However, . . . over cultural, national and industry borders this often fails. A conceptual model is developed . . .The model is applied in two cases . . .*

Elmes, M & Kasouf, C 1995, 'Knowledge workers and organisational learning: Narratives from biotechnology', *Management Learning,* vol.26, no.4, pp. unspec. Abstract quoted in part in section 1 above.

Nicolini, D & Meznar, M 1995, 'The social construction of organisational learning: Conceptual and practical issues in the field', *Human Relations*, vol.48, no.7, pp.727–748

> *. . . OL cannot be understood without taking into account the continuous on-going change of organisational cognitive structures. However learning is only recognised when an observer identifies and contextualises those changes. Thus OL can be interpreted as a social construction which transforms acquired knowledge into accountable abstract knowledge. The paper concludes by discussing the implications of this . . . on management practice and organisational research.*

Slater, S & Narver, J 1995, 'Market orientation and the learning organisation', *Journal of Marketing*, vol.59, no.3, pp.63–74

> *Effective organisations are configurations of management practices that facilitate the development of the knowledge that becomes the basis for competitive advantage. A market orientation, complemented by an entrepreneurial drive, provides the cultural foundation for organisational learning . . . They must be complemented by . . . a 'learning organisation' . . . [The authors] propose a set of organisational elements that comprise the learning organisation and conclude with recommendations for research . . .*

Meindl, J, Stubbart, C & Porac, J 1994, 'Cognition within and between organizations: Five key questions', *Organizational Science*, vol.5, no.3, pp.289–293

> *This special issue of Organizational Science taps into the burgeoning work on managerial and organisational cognition. In the last 15 years, there has been a decided 'cognitive turn' . . . as researchers increasingly explore the relationships between mind, management and organisation. The early groundwork established by the Carnegie School of organisational theory, the success of modern cognitive science, and the recent diffusion of social constructionism within organisational structures, have all contributed . . . to cognitive research [in] job attitudes, performance appraisals, managerial decision-making, environmental sense-making, organisational learning and inter-organisational belief systems.*

Blackler, F 1993, 'Knowledge and the theory of organizations: Organizations as activity systems and the reframing of management', *Journal of Management Studies*, vol.30, no.6, pp.863–884

> *Recent development in the theory of knowing and doing contrast with conventional rational-cognitive assumptions about management and organisation. This, and the emphasis that is currently being placed on the importance of esoteric knowledge for business success, suggests that a review of the relationship between knowledge, organisation and management is timely. Activity theory offers a way of synthesising and developing relevant notions. The approach has its origins in Russian psychology which endeavoured to avoid the dichotomies between thought and action and between individuals and society which have characterised Western theory. Activity theory examines the nature of practical activities, their social origins, and the nature of the 'activity systems' within which people collaborate . . . The theory reframes management by modelling the recurrent and embedded nature of human activities, by revealing the tentative nature of knowledge and its action orientation, and by highlighting the opportunities for individual and collective development . . . The article concludes by reviewing implications for the management of knowledge work, organisational capabilities and organisational learning.*

Bowman, E & Hurry, D 1993, 'Strategy through the option lens: An integrated view of resource investments and the incremental-choice process', *Academy of Management Review*, vol.18, no.4, pp.760-782

> *This article develops an option-theoretic perspective for organisational strategic management. Grounded in the basic intuition that people seek to 'keep options open' in situations that involve an unforeseeable future, and supported by theory in financial economics . . . the theory integrates resource allocation, sense-making, organisational learning and strategic positioning in a unified framework, and it provides a new explanation for some counter-intuitive findings.*

Summary of stage one

Recall here that we were looking for evidence to support our earlier statements:

Management workplace learning is a central element within organisational learning, with the special characteristic that it needs to grapple with the generation of a certain sort of knowledge amidst 'hot action'. Managers have to make decisions in the heat of the moment – and these have to be known to be, and shown to be (since there is a leadership element in all this), the right decisions.

Research into management workplace learning will try to get inside the manager's head – to ascertain the cognitive basis for 'hot action' (on one paradigm) or to ascertain the social basis for it (on another paradigm). There may be other paradigms. Research under either paradigm will be contextually-sensitive – that is, will at the very least, give some priority to the significance of workplace cultures and managers' personal histories in framing answers to research questions. These answers may be presented in different ways to different readerships.

These ten *Abstracts* reveal substantial support for these statements. They try to establish some evidence through research activity that managers' learning within organisations is socially-constructed, and they do this in a variety of ways, namely:

- reporting case studies
- puzzling about 'sense-making'
- introducing further developments in cognitive science or seeking to expand a more sociocultural explanatory paradigm
- unpacking managerial work practices and pedagogies, not just learning activities
- outlining inter-relational concerns across firms, nations, and disciplines

In at least three of these ways (that is, trying to understand managers' 'sense-making'; their cognitive operations or their sociocultural imperatives ; and their (new) work practices and responsibilities, say, for 'teaching' other staff), researchers bring their own understandings to the very formulation of the issues. Contextual sensitivity applies not just to the research on management learning, but also to the researcher, as we noted earlier.

Overall, we can conclude that, in stage one of our 'snapshot' of research journal activity, there is some evidence of the new constructivism, which could underpin the interests practitioners have in better performance.

Literature search: Stage two

The second stage of the 'snapshot' literature survey involved a search starting with 'workplace learning' and related terms. This immediately generated a more productive result than stage one, both in relation to the overall numbers of items, and also in that many of these originated in Australia. Again, some conclusions are drawn at the end of this section.

Amongst the 50 items linking workplace learning with management learning, four kinds of publication can be identified:

- manuals
- commentaries/briefings
- collections/proceedings
- books and long articles

In discussing these publications, we are, first, trying to identify the extent to which there exists any research activity, and secondly, whether there is any direct involvement with management learning.

Manuals

These are, as the heading suggests, 'how to' publications. Here is an example:

1993, Workplace learner provider's manual: Practical steps for developing programs, Pacific Management and Research Associates, Sacramento California, 176pp.

These can not be expected to engage research issues. Also, they are not targeted at managers' work as such.

Commentaries/briefings

This is an interesting area, because there are a great many interesting titles. However, the brevity of each piece, and the type of publication in which these appear, shows the readership is the busy practitioner. Such pieces may signpost other publications, of a research nature, but generally they comment on policies in particular practice, and may raise certain generalisable opinions, but do not themselves deal in the tension between the two, so they cannot *prima facie* be regarded as research. Two examples from the 15 pieces in this category follow:

Mumford, A 1993, 'How managers can become developers', *Personnel Management,* vol.25, no.6, pp.42–45

Plott, C 1995, 'Trends in workplace learning and performance', *Training and Development in Australia,* vol.22, no.3, pp.18–19

Collections/proceedings

Here there is a chance of research activity since collections occur around themes, and, in the case of conference proceedings, an opportunity to present recent or on-going findings. The searches revealed very few items here, however, to of which (below) require some general inference to managers' work.

Long, H et al. 1994, 'New ideas about self-directed learning', (16 papers of the *International self-directed learning symposium*, Norman, Oklahoma 1993). Research Centre for Continuing Professional and Higher Education, Oklahoma University, US, 246pp.

Forrester, K (ed.) 1993, *Developing a learning workforce: An international conference*, (Proceedings – 9 papers), Dept of Adult and Continuing Education, Leeds University, UK, 108pp.

Books and long articles

Here we can identify several items which have some bearing on managerial workplace learning, and we can do so by grouping search items by theme as follows.

- Clearly managerial workplace learning is informed by research on *workplace learning as a whole.* Here we find, for example:

  Caldwell, B & Carter E (eds) 1993, *The return of the mentor: Strategies for workplace learning,* Falmer Press Bristol. In particular, the chapter by F McMahon, 'From cop to coach: The shop-floor supervisor of the 1990s' is notable.

  Watkins, K (ed.) 1991, *Facilitating workplace learning,* Deakin University Press, Geelong. Notable for its selected readings (60% of the book) and nine-page bibliography.

  Billett, S 1995, 'Workplace learning: Its potential and limitations', *Education and Training,* vol.37, no.5, pp.20–27 (also see Billett in Stevenson below).

  Beckett, D 1992, 'Straining training: The epistemology of workplace learning', *Studies in Continuing Education,* vol.14, no.2, pp.130–142.

- Research on *competence and on cognition as an expression of expertise* is apparent. For example:

  Stevenson, J (ed.) 1994, *Cognition at work,* National Centre for Vocational Education Research, Adelaide.

  McCauley, CD et al. 1994, 'Assessing the developmental components of managerial jobs', *Journal of Applied Psychology,* vol.79, no.4, pp.544–560.

  Bigelow, J 1994, 'International skills for managers: Integrating international and managerial skill learning', *Asia Pacific Journal of Human Resources,* vol.32, no.1, pp.1–12.

  Biggs, J 1994, 'Learning outcomes: Competence or expertise?', *Australian and New Zealand Journal of Vocational Education Research,* vol.2, no.1, pp.1–18.

  Pickett, L 1995, 'Competencies and managerial effectiveness', *Training and Development in Australia,* vol.22, no.2, pp.7–17.

  Blunden, R 1995, 'Practical intelligence and the metaphysics of competence', *Australian and New Zealand Journal of Vocational Education Research,* vol.3, no.2, pp.1–20.

  Sendelbach, NB 1993, 'The competing values framework for management training and development: A tool for understanding complex issues and tasks', *Human Resource Management,* vol.32, no.1, pp.75–99.

- Research on the *experiences* of learning at work is evident in the following:

Gaskill, L 1993, 'A conceptual framework for the development, implementation and evaluation of formal mentoring programs', *Journal of Career Development*, vol.20, no.2, pp.147–160.

Owen, C 1995, 'Not drowning, waving: Workplace trainers' views on perceptions of training and learning at work', *Australian and New Zealand Journal of Vocational Education Research*, vol.3, no.1, pp.87–109.

Poole, M et al. 1994, 'Professional and managerial women's perceptions of schooling and current and future training needs', *Australian and New Zealand Journal of Vocational Education Research*, vol.2, no.1, pp.83–101.

Gerber, R et al. 1995, 'Self-directed learning in a work context', *Education and Training*, vol.37, no.8, pp.26–32.

Summary of stage two

In the themes identified in the literature listed as 'Books and long articles', we observe attempts to elucidate the social construction of managers' learning through:

- theorisations of, and fieldwork in, workplace learning as a general phenomenon
- empirical and conceptual examination of the psychology of pragmatic action as shown in competence and expertise
- similar research interest in the workplace learners' own experiences

To some extent these parallel the general themes identified after stage one of the literature survey (see 'Summary stage one'), but without the explicit reference to research activities. Stage two literature was more local, whereas stage one literature was both more internationally contexted, and at the same time, more aware of the strengths and limitations of the 'case study' and specific 'industry' approach. But what is most significant in stage two is the paucity of research activity centred on *management* learning as such.

Around the snapshot: A broader perspective

The limitation of a 'snapshot' is that broader perspectives are ignored. There are three particularly pervasive issues in managerial learning which a snapshot of research literature may not address adequately. These are leadership, culture and competence. Again, we cannot systematically survey these, but we can note some current research conclusions.

Constructing leadership

Time and again, the research literature on managers' learning recognises implicitly or explicitly, the significance of leadership. One researcher, Gronn states:

> *Of all the concepts in the social sciences to have generated controversy, or which still remain essentially contested, more has been written about leadership than probably any other one.* (1944, p.259)

And the Karpin Research Report concludes:

> *Over the years, there have been a number of leadership paradigms [sic] that have fallen by the wayside in the face of empirical disconfirmation or weak results. Trait and charismatic approaches have no consistent findings to report, nor do studies that focus on the behaviours of leaders. The only paradigm that has shown reliable results focusses on contingency models of leadership. However, these only address very specific behaviours in very specific situations, and cannot be applied to more broad questions of 'leadership' . . . We conclude that leadership is more an* outcome *of an organisation's environment, strategy, structure and general management development or selection than it is of any mythic leadership 'qualities'.* (1995, pp.1421–1422)

Karpin goes on to remark that, based on the contingencies above, a 'leader' is a person who is a high performer, and that there many who would identify leadership with managerial best practice, 'vision', for example, being a common quality. We, as a society, seem to need 'leadership' as a problematic category of human experience, even if, as Karpin concludes, as far as we can tell, specific circumstances produce leaders. No generalisability stands up, in research terms. We have to construct leadership in other ways: by describing it when we find it, case by case. This is to say that it is perhaps inevitably context-bound.

Constructing culture

Similarly, the research literature on managers' learning recognises, implicitly or explicitly, the significance of the culture of an enterprise in fleshing out powerful learning.

One popular statement of corporate cultural identity is 'the way we do things around here'. Having quoted this definition and given its provenance, Deal and Kennedy, in a book which has become a standard reference on the topic, *Corporate cultures: The rites and rituals of corporate life* go on:

> *Every business – in fact every organisation – has a culture. Sometimes it is fragmented and difficult to read from the outside . . . Sometimes [it is] very strong and cohesive: everyone knows the goals of the corporation and they are working for them. Whether weak or strong, culture has a powerful influence throughout an organisation; it affects practically everything – from who gets promoted and what decisions are made, to how employees dress and what sports they play. Because of this effect, we think that culture also has a major effect on the success of the business.* (1988, p.4)

Their second chapter is titled 'Values: The core of the culture', and they spell out the often inarticulate, tacit nature of the values which inevitably drive day-to-day behaviour; in fact, they claim that specific operational sets of values give purpose to the entire workforce of that enterprise, and that 'shaping and enhancing values can become the most important job a manager can do' (p.22).

In the decade since Deal and Kennedy published their book, managerial work has embraced this role more fully. Drennan, in his book *Transforming company culture* (1992), also states that culture is 'the way we do things around here', but the 'we' is, for Drennan, the managers: he intends managers to be the agents of cultural change, and for them to direct this from above, as it were, in the interests of every worker and therefore of the enterprise itself.

Culture, then, as a prominent way of addressing the contextuality of work, is a serious and current point of tension in the re-organisation and re-structure of the workplace (whether it be private or public sector). But generalisation about what cultures are more or less productive is, in research terms, elusive. We can recognise the workings of workplace values, through 'reading' the rites, rituals and visual symbols of the office, but we have trouble constructing a general theory. Yet socio-politically we need to acknowledge the power of cultural phenomena at work, even if we can only conclude that, like leadership, its power derives from its contextuality.

Constructing competence

The landmark publication in this vigorous and highly contentious area is Boyatzis, which has as its objective:

> *. . . to explain some of the differences on general qualitative distinctions in performance (e.g. poor versus average versus superior managers) which may occur across specific jobs and organisations as a result of certain competencies which managers share. This will be accomplished by presenting research evidence regarding the elements of a performance-tested competency model of management.* (1982, p.9)

Since the early 1980s, much additional research and policy development has ensued. Debate over the extent to which generic competence exists, or, if it exists, is helpful, continues across all levels of the workforce, and even into schooling (Beckett 1992). Management regarded as a profession is involved in the evolution of holistic, or integrated, competence (see the various NOOSR publications for this evolution), and it must be noted that Boyatzis supported an integrated model from the outset. What is often overlooked is the modest ambit of that model:

> *. . . the [generic] competencies in the integrated model are, on the whole, about half of the competencies that are related to effective performance of managers in particular management jobs in specific organisations.* (p.204)

and that, more broadly, therefore, variations in managerial performance can be accounted for in thirds: one third by generic competence, one third by specific competence, and one third 'probably due to situational factors (e.g. both day-to-day events in the job and aspects of the environment)' (p.204). Our 'hot action' notion certainly addresses the situational factors, and it could be argued that specific competences themselves only acquire their validity in the confirmations of site-specific experiences of individual and collective 'hot action'.

One recent integrative usage of managerial competence is detailed by Kolb et al. where significant and highly influential research into experiential learning has surfaced. After acknowledging the continuing usage of applied competence in training and development functions, they go on to contrast with that approach, 'integrative learning', which requires:

> *. . . learning conditions that are different, at times in opposition, to the approaches that have proved effective for specialised learning. Integrative learning is more concerned with process, with learning how to learn than simple skill acquisition. It is more concerned with executive problem-solving . . . As such it is more internalised and specifically tailored to each unique individual . . .*

> *Integrative learning is holistic and as such addresses the whole person physically and mentally; not only in a specialised skill or job role but in the context of his or her total life situation. Indeed the fundamental challenge of integrative learning is to integrate oneself, to become a whole publicly and privately and to operate from the 'centred' judgement that such a wholeness produces.* (1994, p.153)

Kolb goes on to link this process-based individualism with experiential practices (games, exercises, simulations and so on) which generate a climate (read: 'culture') of learning at work where differences can be examined constructively. By this he rightly means the 'double-loop' learning of Argyris and Schön (1978). This 'constructivism' is congruent with other practices such as action learning, and connects with leadership (say, of teams), where those most involved in running the workplace have some sense of participation in the running of the workplace. Again, Kolb's work, and the work of Argyris and Schön (together and separately), over two decades, could be shown to underpin the new social-constructivist learning inherent in managerial work as 'hot action'.

In this update on integrative competence, we can see its enormous potential for improving managerial learning. In research terms, it seems to have arisen in sociopyschometric surveys, but is increasingly applied in sociocultural ways, at least if the evidence from other professions is anything to go on. In management learning, there is no clear research agenda to develop integrative competencies for organisationally significant outcomes, although there is evidence of individualistic expectations (so-called 'leadership competence') and of organisational settings where specific competencies are located. Linking these three fields could be a fruitful research area.

In fact, that is to say, in practice, these three examples of aspects of analyses of managerial work – leadership and culture and competence – are already intimately interwoven: the best leaders are adept at reading the culture of their workplace, it is often argued. Then such folk go ahead and competently (one hopes), re-shape it!

Some emergent evidence?

Given this new paradigm of the social construction of managerial learning, we must conclude that there is very little *explicit* research evidence for a contextually-sensitive focus on the very experiences at work which, for example, the Karpin Report advocates: managers' understanding of work roles and work relationships. Nevertheless, there are some indications of research directions, even if solid evidence is patchy.

Cognitive

There is, from this perspective, a good deal of interest in the nature of managerial work as such – especially the 'managerial competencies' debates – and this is underpinned by research into cognitive processes. Additional reading elicited the substantial research of Sherrie Gott (1995) which shows contextual sensitivity, and interesting prospects for transferability across workplaces. In Australia, the work of Billett on situated cognition (particularly his evidence for the prominence of 'dispositional' or value-laden, tacit knowledge) and Stevenson on competencies analysis shows how research based on *specific* work settings is amenable to the cognitive sciences as a methodology. This could be helpful in resolving Karpin's equivocation on managerial competence. Karpin is cautious about 'competence' and 'appraisal' schemes There is little evidence, Karpin concludes, that *generic* competence standards would be effective, because specific industry and organisation needs may be ignored. In our analysis, this priority for the particular context can be regarded as a reflection of the power of workplace culture, and the mysteries of effective leadership. Karpin worries that 'objectivity' is at stake: 'Criteria are often vaguely defined, or even defined by the sole person conducting the evaluation' (p.1401). Quite so – and the implications of that are profound. Perhaps cognitive science can provide some direction here.

Sociocultural

There is a good deal of emphasis in the literature on managers' learning, around the Western world (for example, Karpin in chapter three of the Research Report), for the individual responsibility managers have for their own career development. This fits with the self-directed learning ethos, and there is a large literature on that (outside the scope of this survey). What are the implications of self-direction in an organisational context? In this important respect, Karpin, for example, squibs the force inherent in the Report's identification of 'the need for enhanced 'people' skills' (p.1431) by discussing these as 'soft' skills. If these abilities in negotiation, consultation, communication, and the like are so worthy in individuals, and so necessary, and research (across the social sciences) indicates these arise to a significant extent in the experiences of women, then one would expect to read that Karpin would 'address gender issues' (p.1435) with those abilities to the forefront. They are invisible. And they are almost invisible in the meagre research literature on the connection(s) between individuals' self-direction (e.g. action learning), and the waves of organisational analyses some have described as 'faddism' (see section above 'Research amidst fads and paradigms'). How this connection is reflected in managerial competency regimes is also a vital question, seemingly unasked, much less answered. All these are unashamedly sociocultural, even political, matters.

Moving beyond the individual, and her or his prospects, we discussed, in the section above 'Around the snapshot: A broader perspective', the problem of corporate culture in general, of leadership, and that cultural and leadership considerations are implicit in the debate over integrated competence in the professional work. Further, we noted research activity across organisations and workplaces which has identified the value of, and values in, experiential learning, and the consequent enthusiasm for action learning and related strategies for management development. All of these are interwoven in a broadly 'sociocultural' perspective of how we know what we do about managerial learning.

Conclusions from the research literature

If we again ask ourselves, 'How do we know about managerial learning?', we must conclude that there is only *emerging* research evidence for a contextually sensitive focus on the very factual experiences at work which Mintzberg identifies: the dynamism of daily work life, and its explicit translation by managers into the construction of (their own and others') learning. This emergent interest is more implicit than explicit, but there seems to be some convergence on the new paradigm of workplace learning: 'hot action'. Making sense of managers' daily work, and, more significantly, the *research underpinnings of the managers making their own sense of their daily work, for learning purposes,* is common to cognitive, and sociocultural, research activities. These broadly match the metaphors of the 'organisation-as-brain', and 'organisation-as-culture' we noted in the *Abstract* quoted in section 1 above.

In the light of the above, these questions for research are suggested:

- Is 'hot action' a sufficient basis for managers' informal workplace learning?
- How generalisable are 'situated cognition' and cultural analyses – and should they be so?
- How do individual managers' career development plans contribute to corporate strategy?
- Is it important that these do contribute?
- What compromises, if any, need to be made to individual (self-directed) learning when leadership re-shapes corporate culture such that strategic goals now rule some personal learning marginal, and other personal learning, centre-stage?
- And what has happened in that process to the grafting of self-directed 'lifelong learning' onto a 'continuous improvement' enterprise ethos?

One single but telling point can be made of all this, and should be ensured against in all subsequent research: *In the ideologically up-beat world of organisationally-based managerial learning, there is no recognition of the function of research as a critique of outcomes which may be pathological.* In both stage one and stage two of the research literature survey (in above section 'A snapshot of research: Trawling the literature'), what we do not have is any rigorous research agenda for management learning. There is not enough literature in any case, and what there is, is not framed by broad and critical interrogation.

What seems to be required, as a start upon the interrogation of the possibly pathological, is to highlight the need to research (that is, to hold up for critique) the claims of the more participative, 'post-Fordist' workplace as a *desirable* construction of and for the new managers who run such workplaces. This is not just about sensitivity to cultural diversity (where 'culture' means 'ethnicity' or 'gender') but is much wider than that. On educational grounds alone, workplace learning and organisational learning both need to address the purposes of learning. *It is not enough that research advances understanding of managers' 'hot action' but, also, that it deal with the learning, arising in and through the work of managers as leaders, as an explicitly participative construction.* After all, this is what Culbert and many others have identified as marking out managerial work. This would demonstrate a much more sophisticated *contextual sensitivity* than anything we have come across in the research on managers' learning so far.

Research on cognitive and social paradigms, and attempts to get at the 'sense-making' of work practice, then, needs to start with the social construction of workplace knowledge. Competency regimes, mentoring programs, instructional designs, appraisal schemes, developmental plans and so on are artefacts, or tools, which should serve educational purposes. We can make the same point about several classroom-based technologies, such as neuro-linguistic programming and Myers-Briggs type inventories of learning styles. These technologies are presented as part of the repertoire of 'best-practice' human resource professionals, and rightly so (Rylatt 1994).

But as part of managerial work responsibilities, both to oneself as a manager, or to other staff in one's bailiwick, they can present as technicised and intimidating systems conducive to scepticism about workplace learning, and cynicism about innovation and change. Our intention here is to emphasise the importance of thinking of the educational *telos* of such technologies, since it is clearly lacking in literature on workplace learning. Almost no mention of educational purpose occurs in the literature as surveyed, yet, if the truth be known, much learning at work is pathological in the sense that it is maladaptive, repetitive, frustrating and perhaps demeaning. The much-vaunted post-Fordist workplace may be complicit in this – the jury is still out. Workplace learning to be blunt, may often be miseducative. If this statement is *not* true, a rigorous research agenda would reveal it to be so. On the other hand, the same rigour would reveal whether it *was* true.

Betwixt and between

Thus, we can identify one large research gap and many smaller gaps between, and amidst other, inter-related, phenomena, principally the literature on workplace learning on the one hand and organisational learning, on the other. There is, however, some evidence of emerging Australian and international research attention betwixt these two literatures. This research attention seeks to understand the experiential dimensions of managers' learning, as these show up in cognitive and social characterisations of the way the work is done. This starts to answer the research question: What are managers doing? by attending to the paradigmatic question: How do we know?

On the more rigorous reading of these questions, that is to say, amidst and between the tension which inevitably exists between *critical and educational* purposes, and the glossy, evangelical nature of much of the literature as it presents for the readership of practitioners, almost everything remains to be done.

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Notes

1 British Educational Index

The BEI, containing 69 000 records in 1994, has been assembled since 1976, and covers 'all articles of permanent educational interest published in a wide range of English language periodicals in the British Isles'.

2 Australian Educational Index

The AEI, initiated by the Australian Council for Educational Research, covers comprehensively all Australian education publishing, and has done so since 1957.

3 Education Resources Information Centre

ERIC is sponsored by the US Dept of Education, and covers, in two files, most US education document citations, including over 750 journal article citations, commencing in 1969.

4 Australian Institute of Management and Training

Maintained by the Australian Institute of Management in Sydney since about 1990, AIMMAT covers some national and international publications in human resources, training, management and related fields, but it is still relatively small, and concentrates on the 'business press'.

5 Current Contents

Current Contents is a multidisciplinary on-line database of recent (mid-1993 to mid-1996) academic journal citations indexed from the contents pages of about 7000 sciences, arts, and humanities journals. It is updated weekly. Within CC, the Social and Behavioural Sciences section displays about 1400 citations, including the sub-fields of Education and Management

6 Equity and workplace learning: Emerging discourses and conditions of possibility

Elaine Butler

At this time, in late 20th century discourses, increasing attention is directed to trends variously described as the technologisation of information and culture, globalism and global market places, and post modern and post industrial societies. These trends, also associated with a 'crisis' in capitalism, or late capitalism, continue to evoke a number of responses. Of relevance here is the rapid implementation of surprisingly similar major strategies designed to enhance global/local competitiveness of western industrial powers. In Australia, as in other OECD countries, these strategies revolve around micro economic reforms resulting in restructuring of industrial awards, work and workplaces, and education and training for work.

Some of the rhetoric associated with these changes is that of the 'clever' country, learning societies, learning organisations and learning cultures. New mega bureaucracies have been established to both shape and implement policy directives, and oversee the disbursement of large amounts of public moneys, to skill workforces, incumbent, potential and future workers. In Australia, the key players in this seachange include a consensual if uneasy liaison between government, industries, and trade unions, through peak body representation. The 'client' is defined as (big) industry, with the training system being described as both industry 'driven' and more recently also industry 'led'. (Charles/Kemp 1996, pp.4,10.) This linking of industry and (commodified) education is resulting in new interest in workplaces as sites of learning, workplace learning, and (to a lesser degree) workers as learners.

How, and where, is equity positioned in these emerging discourses? In this paper, I argue that consideration of equity and workplace learning is best located within the broader contexts of globalism and lifelong learning, to unravel the connecting threads of advantage and disadvantage.

Texts, including policy documents, implicated in the above scenario seek to encapsulate both economic and social outcomes, albeit in a problematic and most often contradictory relationship. Moreover, a wide ranging literature search failed to reveal any body of research directed specifically to equity and workplace learning. Indeed, my reading indicates that most literature relating to workplace learning tends either to put forward an overtly economistic view, is based within human resource literature, or adopts a humanist/utopian approach rather than utilising critical analytical frameworks. Hart (1993, pp.20–21) identifies (and critiques) two main approaches within the literature, the first being a 'skill approach' that emphasises corporate/national skill requirements of and for the workforce. The other approach is described by Hart as emphasising opportunities for and challenges to learning within the workplace itself – the workplace as a cultural environment, and a site of learning.

Rather than attempt to define 'workplace learning' per se, I acknowledge features associated by Karen Watkins (1991, p.16) with learning in workplaces, viz: the task orientation of much (but not all) of the learning, that the learning is situated in a 'social context that is characterised by status differences and the risk of one's livelihood'; it is (usually) 'collaborative, experiential or problem based'; it 'occurs in a political and economic context characterised by a currency of favours and pay for knowledge', and that learning, in worksites differs from school based approaches to learning. Like Hart (1993) I contend that work can be both educative, and miseducative. I shall not differentiate between on- or off-the-job, formal or informal learning or training. While learning at work is most often associated with training, work related learning often happens despite training undertaken by workers. Workplace learning is not a neutral, a-political activity. Rather, it is about the production, ownership, valuing (or otherwise) and use (or abuse) of knowledges produced by workers and others in the materiality of workplaces, and in their day to day practices of living and working.

To centre equity and so investigate issues associated with privilege, or lack thereof, requires a complex mapping and unravelling of the dynamics, the knowledges, practices and relations of power that contribute to the construction of what is recognised as the field of workplace learning. Townley (1994, p.2), drawing on the work of Michel Foucault, describes this approach as examining the 'conditions of possibility which come to sustain a certain way of thinking and allow it to prevail throughout a certain period'.

This means locating the organising principles of both workplace learning and equity rather than describing; teasing out what makes them 'sayable and seeable' (Townley 1994, p.23). It means considering how workers are constructed, and positioned, both as workers and learners (Edwards 1991). It involves questions around whose interests are being served; who benefits , who/what costs, and who pays.

To centre equity requires challenging of taken for granted dualist frames of reference used to order the modern world, such as the separation of public and private spheres, paid and unpaid work, the economic and the social. It involves analysis of issues through a lens that focuses gender. It means considering issues of difference, and the naming and problematising of advantage (Eveline 1994).

For these reasons, I shall cast a wide conceptual net, examining notions of equity, the organising principles of emergent discourses of workplace learning, and the intersections, collusions and contradictions between these. This covers a range of areas illustrative of the complexity of the field of workplace learning – the broad economic, political and social contexts; political economy; work and labour studies; organisational perspectives; adult and vocational education theories, practices and critiques.

Notions of equality: The conditions of possibility

Equity, as Poiner and Wills (1991, p.7) remind us, is an illusory notion, closely associated with ideas around social justice, equality, and visions of a socially just and 'fair' world. This troubled and slippery concept evokes a wide range of interpretations, and responses from optimism and organising, to silence, rage or (overt or covert) hostility. It may also be co-opted, or utilised uncritically, given rhetorical 'lip service', but very little else. A pre-condition for equity is a 'background of a just basic structure, including a just political constitution and a just arrangement of economic and social institutions' (Rawls 1972, p.87) – the mythical level playing field. In the absence of this level playing field, the project for equity is to establish parity for those categorised within the constructs of 'unequal', with the invisible 'other' or naturalised 'norm'.

Until recent times, the playing field in Australia rested firmly on the social compact established following white settlement in this country. A revisiting of Australia's social compact, its historical elements, patterns of inclusion and exclusion, the assumptions and values that shape its framework, along with challenges to and uses of the compact provides insights into the foundational 'organising principles' of our society and economy. Inherent in this are notions of equity.

Eisenstein (1996, pp.2–14) identifies organising elements of the compact as including links to economic and military needs of first England, and later, United States of America, along with the values and requirements that accompanied these. The white society that was imposed on the Aboriginal world in 1788 was a penal colony, a social structure from the top down, where all economic life was directed by the government (Eisenstein 1996, p.4). From this, an extensive system of public administration has evolved. Finally, the early government was also accorded a major role in the development and delivery of the social welfare system. In this way, economic and social agendas were constructed in a dialectical relationship.

'The concept of a social compact belies the bitterness and genuine contestation that characterised Australian social life' (Eisenstein 1996, p.8). It was constructed on a basis of inclusion and exclusion, with those excluded through policy and practices including indigenous Australians, the poor and anyone who did not quality as British. Drawing on the work of Carole Pateman (1988), Eisenstein reminds us that the Australian social compact embodies a sexual contract (1996, pp.10–13). This sexual contract, based on the assumption of economic and social dependency of women on men (Pateman 1988, pp.116–153) continues as a powerful force in the discursive representations and positioning of women as citizens and workers in Australia (Bacchi & Eveline 1996; Ryan & Conlon 1989, 1975).

Foucault (1977, p.143) describes the use of classificatory systems as 'the art of distribution', to establish presences and absences, to know how and where to locate individuals. The art of distribution rests on three techniques for sorting and ordering – enclosure, partitioning and then ranking. Townley (1994, pp.25–51) further interprets this as 'dividing practices'. In this way the categorised groups identified as 'equity', 'disadvantaged', 'special', 'target' can be further segregated into groups such as 'women', 'disabled', 'indigenous', 'non English speaking background' and so on, described by Jenson (1988) as a discourse of 'and the'. This categorisation both allows for exclusion from the 'norm' to continue, and acts as an organising principle through which equity or justice can be 'distributed' (or re-distributed), in order of perceived/constructed needs and political expediency.

However, such categorisation conceals and contains differences within each group, privileging homogeneity rather than heterogeneity Consider, for example, the endless possibilities of differentiations available within the category 'women'. It also conceals the intersections of the 'groups', the multiple positions or memberships individuals can ascribe to, both across/between and within groups. Further, it conceals conflicts and contestations around privilege and power, both within and between categories; between the 'equity' groups and the remainder of the population.

These tensions, and the contradictory discourses of equality/difference – diversity present a problematic for those working towards equity. Working from a framework of 'equality dignity' as a mode of politics, rather than equity, Simons affirms that both approaches can come into conflict, despite the shared understandings. He contends that:

> *. . . the supposedly fair and difference-blind society is not only inhuman in its suppression of identities, but also, in a subtle and unconscious way, itself highly discriminatory. The fairness of an emphasis on equal rights will be affected by whether or not a society opts for procedural or substantive commitments.* (Simons 1995, p.276)

To date, despite the best efforts of equity advocates and workers, Australia's approach through its complaints-based legislative framework is best described as procedural, rather than substantive. In this way, the legislative approach is seen as central to enshrining and protecting rights, advancing equality of opportunities (if not outcomes) for 'disadvantaged' groups. At the same time, it is also rendered vulnerable in its own marginality to state structures and political economic trends. Given the centrality of government and public administration, it is not surprising that in Australia, advocates representing the needs of various equity groups turned to the State and its bureaucracy in the pursuit of equality. Following international conventions of the United Nations (UN) and International Labour Organisation (ILO), national and State equity related legislation has been enacted in Australia over the last 20 years.

In the main this legislation relies on a system of categorisation to identify the categories/groups of people, who are 'at risk' of unequal treatment, of direct and indirect discrimination. Rather than seeking structural or substantive change per se, the legislation is 'procedural' seeking to 'distribute' equity. As such, it has proved both a mechanism for positive change, especially in public administration, as well as an educative strategy with the potential to engender positive behavioural if not attitudinal change. However, on its own, this is not enough. Using an analysis by Pateman (1981), Poiner and Wills state:

> *. . . it is all very well to push for equity in distributive systems, but so long as wider interpretations of justice and equity are excluded, appeals to equity are ultimately useful*

> *primarily to those concerned to defend a fundamentally unequal and unjust social structure.* (1991, p.7)

This overview frames the 'conditions of possibility' for considering equity in workplace learning. I turn now to consider the area of work, and where workers are located in the Australian labour force.

Locating work and workers

To draw the concept of work into the orbit of critique illustrates the problematic nature of our concepts of work, employment, workplace. Hart contends that:

> *. . . troublesome issues relating to social hierarchies and divisions, forms of exploitation, alienation etc. are reflected in complex and varied ways in general social ideas concerning what constitutes good work or bad work, glamorous or dirty work, and highly skilled or lowly skilled work.* (1993, pp.20–21)

Work is overwhelmingly represented in workplace literature as unproblematic, and as paid work (primarily full time) in the 'official' labour market or public sphere. In this way, work in the so called private (or domestic) sphere, that is both productive and reproductive, is relegated to the status of 'shadow-work' or non-market labour (Daune-Richard 1988, p.261). This omission or silencing has a number of interrelated implications.

First, and indicated in the discussions around the social compact, this representation of work/non-work is implicated in where and how women (and men) are located in the labour market. Moreover, it is deeply implicated in two areas of ongoing contestations, the gendered nature of the construct of 'skill' and claims for pay equity or comparable worth.

Next, it masks the reality that paid 'official' work is both constructed around and totally reliant on the existence and support of labour in the private domain. By this disjuncture, or dualist separation, the public is again validated over the private, as is the labour in the public sphere to the detriment of the other. Further, the inter-connectedness of the knowledges utilised and created by workers/learners in both sites of work is disrupted or severed. This suggests that workers can compartmentalise their knowledge and their identities according to their site/s of activity, a notion which is increasingly under challenge not only from post structuralist and feminist theories, but also in practical political terms from the work/family and family friendly workplace discourses. Another area of challenge emanates from women (and men) seeking to have skills and knowledge associated with home and community recognised as prior learning for workplace competency (e.g. Travers 1995).

The distinction between public and private spheres breaks down further when considering voluntary work, as it does when trying to locate 'outwork', and the growing trend in home-based employees or 'home workers' (Women's Bureau 1996). In these cases, homes are work places. Moreover, it also impacts negatively on work focussed in and around the domestic – services, support and caring work, in terms of status, recognition and valuing of skills, and the rewards for such work, in both career outcomes and pay. This work happens both within and without the official labour market, in a vast array of 'workplaces'.

Learning for work/workplace learning integrates activities across all sites of human endeavour. When considering what is work, who are workers, and where they work, in relation to workplace learning, the exclusion of the domestic perpetuates inequalities. This theme of perpetuated inequality is now explored further, examining where and how 'equity' groups are positioned in the labour market.

The acts of inclusion and exclusion discussed in relation to the social compact were until recent times, reinforced by legislation and economic policy that Pixley (1993, p.49) describes as a trilogy of industrial arbitration, tariff protection and immigration controls designed to protect white male wages, jobs, working conditions and living standards. In critiquing this collusion, it is also pertinent to remember that, in Australia's early labour history, a significant combination of people, events and ideologies also acted to restrain 'the power of capitalism and employers over the lives of significant numbers of working people' (Williams 1992, p.vi). However, the legacy of the racist, sexist and colonial values and assumptions that shaped the agenda continue to contribute to the marginalisation of significant sections of the population. This disadvantageous positioning is mirrored in Australia's labour market structures and segregation.

Segregation is defined by Williams (1992, p.59) as 'the concentration of persons by ascriptive criteria such as gender and race in particular sectors of employment'. Australia has one of the most gender segregated labour forces of the OECD countries including both horizontal (industry) and vertical (occupation) segregation. Despite an increase in women's participation in the labour workforce in Australia to 54.4 per cent, and that women now comprise 43.3 per cent of the paid workforce (ABS 1997), their distribution across the range of industries and occupations is uneven.

Women are clustered into a small range of service oriented industries – health and community services; retail; education; accommodation, cafes and restaurants, and finance and insurance. The occupations that are overwhelmingly feminised are those of clerical, salespersons and personal service workers, and para professionals, making up 79, 65.5 and 50 per cent respectively of all persons employed in these groups. It is these industries and occupations that are described as feminised, traditionally perceived as requiring low skill levels, in comparison with male occupations. Moreover, it is these areas that have not enjoyed a history of structured and accredited/ formally recognised training, such as that offered by apprenticeships in industries associated with the masculine, and categorised in Australia as 'non-traditional' for women.

Within these segregated feminised clusterings, further dividing practices are identified, with the high incidence of part-time and casual employment (including marginal and precarious employment) being the most significant. 42.8 per cent of employed women are in part time employment, with over 62 per cent of these part time positions being casualised (ABS 1997). This marginalised positioning is compounded by the low level of union membership in these industries and occupations, the relatively low bargaining position of workers, and the low levels of remuneration. However, it is these service oriented industries that are continually designated as growth areas suggesting both the potential to further the polarising trend between 'core' and 'periphery' workers and (perhaps) the potential for improvement in status of work in these industries.

Women from non-English speaking backgrounds have a higher unemployment rate, a higher proportion working full time and a higher proportion of unemployed women looking for full time work, when compared with the data for 'all women' (ABS 1996). Further differences can be noted in the case of migrant workers, again with differentiation between male and female experience, country of birth, whether of English speaking background or not.

The Department of Employment, Education and Training (DEET) comments on the reduced proportion of migrants in the workforce, despite the (exploitable) benefits they bring, including:

> *. . . familiarity with other languages, understanding of different cultures for marketing and trade purposes, understanding the business and legal environment in other countries and the possibility of using networks of family, friends and business associates for overseas contacts.* (1995, pp.34–35)

In general, female migrants have not enjoyed the increased labour force participation generally associated with category 'women'. Bertone (1996) attributes this in part to the downsizing, restructuring and decline of the now vulnerable (manufacturing) industries where many women immigrants work/ed on a full time basis, reflecting that, in the near future, the 'bad old days' of lowly paid, repetitive and often dirty work may be remembered as the 'good old days' in terms of availability of full time, regulated work.

Although in 1993, 18.2 per cent (3.2 million) Australians had a disability, DEET (1995, p.36) advise that 'trend data on labour force participation and disability are difficult to ascertain' due to lack of consistent 'definitions'. However, given both the potential of the Disability Reform Package (1991) to facilitate increased participation in education, training and employment, and an ageing population, DEET (1995, p.36) project increased labour force participation for people with disabilities.

Despite the disadvantages experiences by the above 'equity' groups, Australia's history of the dispossession and exploitation of the indigenous population relegates their positioning on all social indicators as both most unjust and inhumane. Drawing on the work of Roberta Sykes, Thorpe (in Williams 1992, p.189) in his discussion of employment for indigenous Australians, promotes the concept of colonised labour 'as a means of explaining the realities of Aboriginal labour patterns and to distinguish these from other kinds of workers . . . in the Australian context'. Tracing the history and characteristics of the labour market 'experience', including indigenous contributions and resistances along with the exploitation and discriminatory practices by the State and employers, Thorpe (in Williams 1992, p.96) notes that colonised labour derives from the processes of imperialism and colonialism; because it is a direct outcome of colonialism, is subordinate to all other forms of labour; is suffused with force and repressive elements of power much more overtly than the social relations of production typical of wage labour, and it renders the colonised worker both desirable and undesirable as a source of labour.

Along with a history of exclusion, exploitation and extermination, Thorpe also documents and traces legal and industrial issues that have served to further marginalise Aboriginal and Torres Strait Islander workers, through 'restrictive, exploitative and ambiguous practices' (in Williams 1992, p.107).

A comprehensive analysis of indigenous employment was completed by the *Review of the Aboriginal Employment Development Policy* (Commonwealth of Australia 1994a). This illustrates clearly that indigenous people have a very low participation rate in the mainstream labour market; that this is not changing, despite massive programs of government intervention and that when indigenous people are employed, they are most likely to be working in and for their own communities (Tranby 1994, pp.33-34). Mary Graham (forthcoming) also reminds us of the different values and perceptions that indigenous people invest in the concept of 'work' (and therefore 'workplaces'), and the significant contribution by culture, beliefs and histories to these understandings. Within this bleak scenario it is important to recognise and celebrate the range of achievements by and contributions to public life, in social, economic and cultural arenas, contributed by indigenous Australians, along with their enduring acts of courage that make such achievements possible. It is also essential that, in confronting past (and present) practices of racism and exploitation, that such practices be challenged and transformed.

The variations of location and associated unequal opportunities illustrated above remind us that Australian labour market is far from neutral, or 'benign', that it is no one unified labour market, despite its representation as such.

This acknowledgment and foregrounding of advantage/disadvantage is a significant standpoint for endeavours in the area of equity and workplace learning. The representation of work, workers, and workplaces is deeply problematic, and multi-layered. Moreover, given the permeability of national boundaries for 'post industrial societies', it should also be noted that the overseas workers in Australia's 'off-shore' ventures are omitted from any consideration in discussions about 'our' labour force, thus rendering them both invisible and silent – counting for nothing. As encapsulated by Hagen and Jenson (1988, p.14) 'there is no single construct "work", no single "labour force", and certainly no possibility of speaking simply of "workers"'.

While this last section has not adequately addressed issues of difference, it has endeavoured to problematise notions of 'work' and how work is organised. Through the contextualisation of selected 'equity categories', it can be seen that further marginalisation occurs within the labour force, which is neither unitary, neutral nor benign. This segregation has implications not only for the possibility and potential of workplace learning, but also for the life chances of the worker/learners.

Shifting boundaries: Economic globalisation and learning

Although the previous section discusses workers' locations in Australia's segregated labour forces, no attention was paid to the global context in which their workplaces are situated, nor the impact of global trends on the (re) organisation of work, or workers at the local level. This broader view is also of significance, in the tracing of contemporary and emerging texts around work, work knowledge and learning. Given the priority assigned to improving Australia's international economic competitiveness through a skilled workforce, workplace learning is firmly located within this broader global context.

While the notion of globalism is not new (Waters 1995, p.4), the turbulent changes occurring in late 20th century life and work are most often connected with it. Hall and Harvey (1995, p.71) argue that the 'elusiveness and ambiguity' associated with the word globalisation assist its ascendancy to a 'key rallying point', in the popular media, academia and the business world. The terminology associated with globalisation provides a discursive map of the organising principles in this emerging meta-narrative: global economy, information society, global restructuring; advanced, late, transnational, disorganised, global and post capitalism; post industrial, post Fordist, transformed workplaces.

Further, Hall and Harley (1995, p.72) connect the following elements (that they describe as notorious lexical characters) with globalisation: flexibility, flexible specialisation, lean production, socio-technical production. Many of these terms (and the work practices that accompany them) evolve from another piece of the mosaic of globalisation – 'the impressive global success of Japanese industry in challenging American and European domination' (Waters 1995, p.82). The 'Japanized organisation paradigm' that rests on 'flexible specialisation' and 'flexible accumulation' includes strategic management practices, 'just in time (JIT)' production techniques, total quality management, teamwork, managerial decentralisation, a numerically flexible labour force, and functionally flexible workers (Waters 1995).

This jargon is rapidly becoming part of the every day language, learning and lives of many workers in restructured workplaces in Australia, as elsewhere. As noted by Hall and Harley (1995, p.71), globalisation has been picked up as an organising principle 'with enormous and uncritical enthusiasm by many businesses, management and human resource management researchers' (and practitioners). The rhetoric of global competitiveness that accompanies most of the contemporary training literature is located within this context, and these discourses.

These trends are all too apparent in Australia. The literature in this field abounds with debate about the inevitability (or not) of post Fordism, and the relationships between Fordism and post-Fordism, about concepts of flexibility, 'new managerialism', and the changing nature of the organisation of work in 'restructured' workplaces. Much less is written around issues of equity, equality/inequality, other than discussions (usually in gender neutral language) of the polarisation or fragmentation of work into 'core' or 'peripheral' work and workers. A wider net needs to be cast. As Bradley comments:

> *. . . the spread of a globally based economy has been built upon existing hierarchies of class, gender, 'race' and age, promoting new patterns of social and economic inequality. No complex account of contemporary social development can overlook these factors.*
>
> (1996, p.13)

Given Australia's economic and political involvement in the discourses and discursive practices associated with globalism, workers and their workplaces are also implicated. A post modern reading of this could lead to describing this as the colonising of workers and the knowledges and skills that inform their labour. The site of this activity is first that of industry, and then that of enterprise or organisation. We need to consider how equity is framed in the texts associated with these sites of work and workplace learning.

Dominant theories and literature around industry, organisations, enterprises and human resource management remain a gender-race/ethnicity free zone, despite sustained feminist critique over the last decade. Townley (1994, p.15) critiques the human resource/personnel management literature as 'gender blind, issuing descriptive and prescriptive statements concerning a seemingly homogenous workforce, irrespective of issues of class, race or gender'.

Like the emancipatory notions originally associated with technology (increased leisure time, and decreased low skilled monotonous work), the new economic 'imperative' of globalisation will not deliver utopian futures for most workers. Rather, evidence points to deepening social divisions, especially in the search for cheap and docile labour, and the redistribution (or polarisation) of life chances (Hart 1993). These divisions and patterns of inequality are now transnational – both global and local. Harding (1995) suggests that it behoves us all (including international business) to interrogate the history of globalism, to understand the price of 'today's version'. She argues that we need to be very clear about and very critical of the price that is extracted (historically from women, children, indigenous peoples and other minorities), so that 'we in the west, at this particular moment in human history, may do better' (1995, p.23).

This interrogation applies equally well, when we consider issues around equity, and evolving opportunities for work related learning. As Hart reminds us, an analysis of social divisions, and changing patterns of inequality:

> *. . . need to be systematically integrated into a discussion of new learning opportunities and work in order to grasp the fact that these opportunities are finely tied to an all pervasive structure of privilege, interlacing in systematic ways with the categories of sex, race, ethnicity, nationality and class.* (1993, p.29)

Who will work? What will they do, where and under what conditions? Who will learn? What and how will they learn? How will knowledges be created, and used? Who will own the knowledges? For most of the emerging literature on workplace learning, these are dangerous and therefore non-questions. While the impact of globalism is evident in the changing nature of work, it is also inscribed into emerging discourses about learning and work.

Persuasive discourses—learning in a post-industrial era

In Europe, 1996 was proclaimed the European Year of Lifelong Learning (AAACE 1996, p.16). This trend can be traced across a number of industrialised countries (NBEET 1996, p.2). I argue that the trend can be viewed as the colonisation of discourses of learning, and especially learning for work/work related learning, into the dominant discourse of globalisation, and its inherent economic discursive practices associated with global competitiveness and late capitalism.

The response to a Ministerial request in 1994, that the National Board of Employment, Education and Training examine how education and training sectors could contribute to lifelong learning, displays the language of globalism discussed in the previous section:

> *. . . because of rapidly changing circumstances (particularly but not exclusively economic) there is a strong need for people to continue their learning – that is, to be lifelong learners . . . the message is clear: the key to economic and social improvement lies in having a population that is adaptable, flexible, well educated and attuned to the need for lifelong learning.*
>
> (NBEET 1996a, p.2)

The approach in New Zealand is similar. In the inaugural issue of 'Learn' David Hood (1994, p.2), as Chief Executive of New Zealand Qualification Framework, writes that 'worldwide, nations, enterprises, and individuals are recognising the importance of learning in modern society.'

In the persuasive texts selling the 'good news' of lifelong learning, the economic and the social are again thrown into an uneasy relationship. The continuing assumption is that the economic has primacy; the social is dependent on the neo-classical definition of what is economic. Young (1994, p.11) contends that in all countries in western Europe there is a crisis in post compulsory education that is not educational in origin. Rather, it is a consequence of developments in the global economy. While acknowledging that notions such as 'learning society', 'information society' and 'skills revolution' are responses to economic changes, including the recognition that production and conditions for profitability have shifted, Young (1994, p.5) identifies the 'crucial' and contested question as 'which kind of learning society and for whom?'

The links in the above texts are global competitiveness/productivity–learning society–industry/enterprise–individual/worker/learner. It is interesting to compare this with the point made by Waters (1995, pp.42–43). Drawing on the work of Robertson (1992), he argues that globalisation 'involves the relativisation of individual and national reference points to general and supranational ones'. Together these four elements (individual as citizen; national society; international societies; humanity in general) constitute what Waters (1995, p.42) describes as the 'global field'. It is necessary to consider how discourses of learning/education are implicated in this global field, especially through the theories and practices of workplace learning that treat the local-global linkings of (non specific) worker-learners as non problematic.

This then, is a partial map of the global-local context and the discourses in which workplace learning is situated. It is a context in which people are almost invisible, but when represented, are constructed as citizens/workers in gender/race neutral terms. Questions (or even rhetorical statements) about equity and equality are silent. The key actors are corporate interests (industry, enterprises, business, organisations) supported by government/s. The elusive individuals/citizens are cajoled, in economically explicit and socially persuasive ways to embrace learning, for the economic good of their nations and societies. Benefits to them remain illusory, framed in uncertain global visionings of emerging futures.

In an effort to ground this investigation, and resolve issues of equity, the focus of thisdiscussion returns to the local – education and training for work in Australia.

Interrogating the local: Education and training for work in Australia

Workplace learning is not a new phenomena. What is new is the sweeping regulated approach to capture the depth and breadth of learning for work, workplace learning and vocational education and training into a formalised, unified (albeit devolved) national system based on the concept of a training 'market'. As a market, it is both shaped and driven by neoclassical ideas of demand and supply (and the relative power of those categorised into either side of that 'equation'). The state, through State and federal ministers and a plethora of associated authorities 'steers' this unwieldy everchanging national training system.

The authority established in 1992 to manage National Vocation Education System (NVETS) is the Australian National Training Authority (ANTA). Given the imperative to 'restructure' and 'skill' Australia into the clever country, its over-arching goal is to increase the global economic competitiveness of this nation, through the provision of a highly skilled workforce. Under the watchful gaze of ANTA, public and private provision of vocational and work related learning is encapsulated into a regulatory, if imperfect framework.

It was through a series of documents and policies enacted after the ACTU/TDC (1987) 'Australia Reconstructed' report, that the explicit linking of education and industry/work, of skill formation and economic performance was made overt. The training reform agenda introduced was one part of a three way strategic approach – deregulation, privatisation and tariff reduction; industry and award restructuring, and training reform (Pickersgill 1995, p.15). The 'principle' of structural efficiency and productivity provided the base line. Moreover, and as communicated earlier in this paper, the key players in this sweeping reform agenda for vocational education and training continue as government, industry and (now to a much lesser degree) trade unions, within an uneasy alliance and shifting power relations. The similarities between this tripartite 'contract', and the shaping of our earlier social compact are noticeable, as is the absence of the female.

It would appear that 'educators' are all but superfluous in this system. The privileged position of industry assigned by the former Labor government was reified by the appointment of top level (male) business executives (and owners) from large business, to key boards and decision making bodies. Educators (or education) enjoy little (if any) representation on such bodies, a pattern replicated down through the hierarchical bureaucratic system established. Industry and businesses are elevated to expert status in education; educators are not accorded any expertise in business. Moreover, given the conflation between industry/workers as the client, the scenario for workplace learning is even more problematic.

It is beyond the scope of this paper to critique either the National Training Reform Agenda (NTRA), or the National Vocational Education Training System (NVETS) in any depth. However, it should be noted that in its brief history, ANTA has undergone major reviews which continue to result in policy changes designed specifically to increase the status and role of industry, and to further deregulate the 'training market' (Allen Consulting Group 1994; Commonwealth/Taylor 1996). As this paper is being written, yet more changes are in process for ANTA and NVETS. Perhaps not surprisingly, these changes focus on aspects of economic globalism, globalisation and the competitive world markets; improved technology; changing work practices and industrial issues; a heightened emphasis on performance measurement (ANTA 1996b, p.3), and on flexibility, quality and efficiency (ANTA 1997).

Given this paper's concern about equity and workplace learning and the centrality accorded to global competitiveness and business in the NVETS, it is important to consider, albeit briefly two aspects - the perceptions of 'business', as well as outcomes of this national approach to work related learning for equity groups.

Despite the rhetoric of 'industry driven', Butterworth (1995, p.28) reports ambivalence by industry about the national approach to training viewed as a 'reform agenda driven and dominated by government'. In short, industry feels 'locked out' (1995, p.29). This reinforces findings of the Allen Consulting Group (1994), that an 'apparent lack of strong business support for the reforms' was the key matter for concern participation.

This theme continues in research undertaken by Richard Sweet (1995), who comments on the thinness and inconsistency of the relationship 'between the 'all too complicated' NTRA and training decisions made at enterprise level'. Sweet asserts that:

> *. . . firms invest in training because it effects their bottom line. When they decide to invest in training, the way in which they do it will not necessarily follow the directions presumed in the training reform agendas, about which almost none either know or care anything . . .*
> (1995, p.7)

This ambivalence and confusion of industry, and the complexity of the government initiated reforms not only highlight the contested terrain of education for workers, but also go some way to explaining the data that is available.

Industry in Australia is reported to invest approximately $3 billion in training, a figure almost equivalent to government expenditure. An estimated 7 million people aged between 15-64 participated in some form of training in 1993, with female participation reported at 43 per cent (Townsend & McLelland 1995, p.72). Women's participation in publicly funded vocational education continues to fall as does their enrolment in apprenticeships (ANTA 1996c). Further training outcome differentials include the division in the types of training undertaken, reflecting both the horizontal and vertical segregation in the labour market and in work places. Men attended more external training courses in management, professional training, and trade courses, while women predominate in training in sales and personal service, office skills and general computing (Townsend & McLelland 1995, p.72). In publicly provided vocational education through Technical and Further Education (TAFE) institutions, women cluster in the fields of study aligned with feminised work areas, and predominate in pre-vocational, entry level and the 'stream 1000' courses that do not count in as vocational training (Butler 1997).

Another trend of concern to workers designated as marginalised is Worsnop's (1995, p.4) claim that 'there is a certain amount of self selection in the workplace in regard to training', that a lot of training is accessed through direct employee request to a supervisor. Given reports on the troubled positioning of marginalised groups in Enterprise Bargaining Agreements (Smith & Ewer 1995; Bertone & Keating 1996) and the lack of knowledge of workers in feminised industries and occupations about training (Lawrence et al. 1994; Butler et al. forthcoming), this does not auger well for such individuals or groups.

The above is a thumbnail sketch of activity within the NVETS, in Australia. Generally, the implementation of these reforms was viewed with cautious optimism by those working with or for groups of workers (and potential workers) of lower status in the labour force. The magnitude of the shifts were viewed as a 'window of opportunity' for inserting equity into mainstream agendas around education and work, at a time of structural change. The provision of nationally accredited, portable training, with the potential for formal recognition of skills in areas where such opportunities did not exist were seen as a way to improve equity outcomes. However, despite much effort, innovative and strategic activities at all levels from policy to practice, results have been patchy for equity groups. Of particular concern has been the ongoing tendency to align the skills (in the format of competency standards) associated with feminised work at low or entry level skill classifications, with the potential to introduce a 'cardboard' ceiling for women aspiring to work and careers classified as para professional.

As these disappointing outcomes were arrived at in a decade where the rhetoric of equity can be located in most policy documents, I turn now to consider implications associated with incorporating equity, into learning for work.

Technologising equity: Taking care of business

In 1995, at the ANTA National Conference 'Towards a Skilled Australia', the then Prime Minister Hon Paul Keating MP, proclaimed what is now a much quoted statement, viz:

> *. . . the issue of vocational education and training transcends all other loyalties . . . It is in the first place, a national issue of equity.* (Keating 1995)

Ironically, it was also noted that he was the only major speaker who did foreground equity, despite its positioning as one of the two aims of Australia's vocational education and training system. These aims indicate yet again, the tensions between economic and social, and a procedural or distributive approach to redress 'disadvantage'. Again, these aims are located within a now familiar discursive conditions of possibility – to ensure that future vocational education and training will be more flexible, to accommodate the needs of industry as the principal client; more devolved; more informed . . . with primary regard 'to lifting the skills of the Australian workforce' (ANTA 1994).

The following groups were designated by ANTA (1994) as disadvantaged target groups, or those under-represented in vocational education and training:

- women
- Aborigines and Torres Strait Islander peoples
- people with a disability
- people from rural and isolated areas
- unemployed people
- people without adequate English language, literacy and numeracy skills
- people with non-English speaking backgrounds (ANTA 1994b, pp.15–23)

These 'target groups' are located space within the third of the National Strategy's four key themes, viz: greater responsiveness; enhanced quality; *improved accessibility;* and increased efficiency (ANTA 1996a, p.1). Thus equity is aligned specifically with and 'under' improved accessibility, rather than being incorporated as an organising principle.

Moreover, 'new' target groups: males, particularly young men and boys in the senior years of schooling; in the high suicide risk group; at risk of incarceration; and Aboriginal and Torres Strait Islander men; people with a psychiatric disability; prisoners; mature age workers faced with restructure due to structural changes in industry; refugees from a variety of ethnic backgrounds; and the homeless (ANTA 1996a, p.3).

Added to this list is yet another emerging target group – the information poor (NBEET 1995).

While it is admirable and can be viewed as equity related 'progress' that such groups are acknowledged in a national strategy, given the overwhelming numbers represented through target groups well over 65 per cent without inclusion of emerging groups (Daley 1996, p.3), the question must be asked: who is the system serving? The person/s not listed provide a partial answer.

Poiner and Wills (1991, p.6) 'target' in relation to equity, as a 'dirty word'. Target, they advise, can be used in a variety of ways including that of measures being literally 'fixed or aimed at' these specifically identified groups'. Another problem inherent in the distributive model of equity, is the placing of the so called 'target groups' in competition with each other, with each group vying against the next for a (reducing) share of funds designated for 'equity'. This has several implications. The first is that action for this 'conditional inclusion' must be undertaken at a variety of levels, each complex in its own right – micro (e.g. for provision of, and access to training sessions or work; for inclusion in consultation processes); meso (at State decision making levels – for inclusion in industry training plans, State training profiles, or at the Human Resource level in enterprises), and at macro level (national policy responses, pro-active advocacy and lobbying activities, peak body representation). Above this, is the linking with international trends and issues around equity. Such activity, which I frame as equity work, requires continual vigilance, good information networks and much time, commitment and endurance.

Another implication is that of categorisation, or dividing practices that render equity 'sayable and seeable' in naturalised or taken for granted views of the world. If it can be shown that target groups are listed, given some form of compensatory recognition, then 'equity' can be shown to have been 'done'. In this way, equity groups can be named, located and managed, albeit as a cost. I shall now consider some of the emerging approaches to equity, in the broad field of literature relating to workplace learning.

The emergence of *equity as a cost* is not a new phenomena, but the prevalence of this approach is appearing more frequently, in textual references to equity (Barnett & Wilson 1995). Equity is viewed as an 'add on'. One response to this has been the positioning by 'equity groups' to represent themselves as untapped human resource potential. This, I believe, while promoted as strategic in moving towards equality is also problematic, given the 'bottom line' of businesses to increase productivity and therefore profit through deployment of its human capital. The emerging discourse around 'managing diversity', which, while espousing the value of 'diverse' work forces, is also quite clear about the expected outcomes of productive diversity (e.g. van Eron 1995; Herriott & Pemberton 1994; Natoli 1996). I frame this discursive approach as *equity as productive diversity*.

Another related issue that arises, not only from the NVETS/ANTA positioning of equity (ref. Taylor & Henry 1995) but also in the human resource and lifelong learning/learning organisation literature, is *equity as efficiency and effectiveness,* in that exclusion of equity groups from 'national skills base' is an act of national inefficiency. This theme is emerging in policy and related documents (e.g. Daley 1996), demonstrating the shift to 'talk the talk' of the dominant economic discourses. In this way, actors hope to both shape and challenge policy at local levels (Yeatman 1994). Equity as efficiency and effectiveness is also an interesting example as to how meanings and words can be written, read and interpreted in a variety of often contradictory ways, as 'managing' for employers, or strategic positioning for equity advocates (Eisenstein 1996).

One (potential) representation that rarely emerges, at least in its fullest potential, is that of *equity as expertise*. This approach recognises the intellectual investment required by those called on to 'speak for' equity groups. Given that equity is so often regarded as an extra much of the work or to plan for equity is assigned to workers on top of or outside their normal duties (Connole & Butler 1996).

Co-existing with the above emerging representations, is that of *equity as legislative necessity,* resulting in workplace training, usually at managerial level, in behaviours and processes to avoid litigation.

There are a number of ways one can consider the above discursive representations of equity, in the fields organisational/human resource management, work, work related learning, and vocational education and training. One approach is that of illustrating the 'complex and fluid patterns of inequality' that are emerging, given the various forms of fragmentation in the broad spheres of economic and social life (Bradley 1996, p.207). Bradley (1996, pp.8–9) argues that 'while persistent patterns of inequality are identified, . . . the structures of stratification are volatile'. Hence the emergence of new 'target groups' pushes at the boundaries of conceptualising equity. In turn, responses to reframing equity, can be read in contradictory ways of repositioning of equity groups to gain advantage and responses from those who wish to protect advantage.

Another approach is that of the struggles around equity in the emergence of a new regime of truth – that of productive (public) culture (Stockley & Foster 1990, pp.307-328). I would like to take this idea one step further, and link it partially with the work of Fairclough (1996), in suggesting that this be considered as the technologising of productive culture. Stockley and Foster (1990, p.312) link many of the aspects associated with economic globalism with what they describe as 'productive culture', a culture being constructed through changing work orientations and practice (including in this case work related learning), to 'solve' the current economic crisis. What is interesting about this, is that the social is being cajoled to fix or solve the economic – the theme that runs throughout this paper.

This discourse of productive culture runs throughout the texts of new work practices, where people work in teams, to solve problems for quality outcomes and increased productivity, thus contributing to national local-global economic competitiveness – a revisiting of the global field. This discourse is inscribed in the texts of vocational education and training, as it is in those of lifelong learning, learning organisations and workplace learning. We read continually of organisational culture, workplace culture, learning cultures. Knowledge/s are created, commodified, captured, colonised and used for the common good – skilling, and continuous improvement, again for economically better and brighter futures. Knowledge is 'democratised', within the discourse of productive culture. In this way, 'diversity and creativity, strategic problem solving, the pursuit of excellence and total customer satisfaction . . . become the new organising principles' (Casey 1995, p.131). This, like most panaceas about learning constructed for public consumption, can sound utopian. However, as Casey (1995) argues, the crisis is not just in the economic; the social is the new crisis in post-industrial production.

Workplace learning is at the centre of this shift, as it is in the technologies of productive culture. Moreover, the contested terrain around work related learning and work related knowledges becomes more complex, in what is now a struggle around the identities/subjectivities of workers, a contest for the 'hearts and minds' of good corporate citizens. Neither equity, nor the functional approach of target groups fit easily into this scenario of global/corporate business interests and of individualism. Indeed, Stockley and Foster claim that the:

> *. . . call for equity and equality lacks the rigour needed to combat the productive culture scenario and currently has no discourse or agenda able to cope with the necessary redefining of concepts such as access, equity and participation. These terms are already being reworked in economic rationalist ways and will be 'technologised' further in the new future.* (1990, pp.317-318)

This, I contend, goes some way to illustrating the problematic and fragmentary position of equity within the rhetoric of work, workplace learning, and globalism. Moreover, I argue that the reworking of equity terminology, as seen in the emergence of the new discourses of equity, indicates 'technologising' of equity, in the best interests of business, and productive culture. Here, they again become repositioned as symbolic displays of equity, where 'excellence is to be supported above a 'fair go'' (Stockley & Foster 1990, p.309).

Converging discourses: Equity and workplace learning

By identifying and considering the complex discursive field of the seemingly simple notion of 'workplace learning', it has been possible to unravel layers of interconnected forces that shape this emerging discourse. I have argued that it is located within and between a number of existing discourses, those of globalism, and particularly economic globalism; notions of lifelong learning and learning societies/organisations; the disciplinary fields and practices of organisational theory, human resource management, vocational education and training; the organisation and governance of labour markets, education systems and national economies.

When considering equity within this dehumanised and complex terrain, it is possible to identify protected advantage, and re-occurring themes of disadvantage, that are both local and global. What does emerge is the consistency across national boundaries, and time, of who the 'disadvantaged' are, and the perpetuation of distributive equity approaches, at the best. Also consistent is the demand for structural and systemic change, which is recognised as essential to achieve equity, but not accompanied by the necessary political will or the collective courage to act.

While tracing the origins and organising principles that support this scenario, the emergence of a dominant discourse of productive culture is discussed, along with the co-opting of equity, and workers/learners so categorised, to serve this new 'master'. The continuing thread that connects the multiple discourses discussed is this: gender-race decontextualised, neutral workers/learners, engaged in a process of continual learning, and continual improvement to increase the productivity of enterprises/industries, in the quest for national competitiveness in a global market place.

While the above picture is one of an uncertain if bleak scenario for equity and equitable outcomes, within imminent futures, the materiality of segregation and inequity cannot be abandoned. This remains the challenge for both policy makers and practitioners. It is also the challenge and day to day reality for many workers in their worksites, and for the increasing numbers of those aspiring to obtain work, albeit within a climate of increasing labour market 'flexibility' and polarisation.

Workplace learning crosses the boundaries of both work, and learning for work. For this reason, along with its embeddedness within economic globalism, policy and practices associated with equity and workplace learning must cross boundaries, at local and global levels. This will require ever increasing vigilance, and a willingness to centre equity in any texts, policies and practices associated with workplace learning. This centrality of equity is required at all levels of endeavour, from designing and steering systems, to talking with workers about their learning needs, to the design and delivery of learning opportunities. Equity can no longer be taken for granted, ignored or ticked as 'done', in a tokenistic fashion.

Neither work, nor the pedagogies associated with learning for work can continue to be represented as a-political or gender-race neutral. Issues of power, and the interconnectedness between differences – power – knowledges are central. If we are serious about equity, now is the time to critique the plethora of work related learning 'how to' texts, academic books, journal articles, and research projects that contain and hide issues of difference and power in their seemingly apolitical neutral positioning. Finally, within these texts, I insert a plea for the voices of worker/ learners themselves, that their experiences, successes, struggles, resistances and vision may temper their unproblematic representation as either a 'worker' or a 'learner' in the textual field of workplace learning.

Although the practice of equality has always lagged behind the rhetoric, the ascendancy of productive culture is silencing that rhetoric, privileging the economic over the social. We have a lot at stake. It is fitting, I believe, to conclude with the words of Pat O'Shane, who says:

> *We have to take stock now and ask ourselves what sort of society we want to build for ourselves in the 21st millennium. What are our guiding values and principles? The proposal I put forward is that we reaffirm the principles and values . . . of equity and participation; that we affirm we are a society of human beings, not numerals. . . . There will be extraordinary pressures brought to bear.* (1996, p.1)

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7 The assessment of learning

Russell Docking

THIS PAPER PROVIDES an extensive review of published research in the area of the assessment of learning in the workplace. The review reflects present understandings of the field and the adequacy of research conducted and suggests areas for further research to inform policy and practice.

A review of the literature reveals that there are three major forms of published papers in the field of assessment in the workplace: anecdotal studies, conceptual studies and empirical studies.

Anecdotal studies (sometimes referred to as 'case studies') are typically presented at conferences by practitioners from industry, by training providers or by representatives of government agencies. The papers describe the context of a particular application of workplace assessment, the assessment systems and strategies adopted, and the outcomes observed. The writers of these papers are deeply immersed in their workplace and are very context bound, and rarely attempt to demonstrate external validity by reference to other studies or to other contexts. The papers are generally well received by other practitioners, who draw upon them for practical ideas that they can utilise in the context of their own workplace.

Conceptual studies (sometimes referred to as 'armchair research') reflect upon experiences or ideas from the position of some philosophical or conceptual standpoint. Papers of this kind are presented at conferences and published in journals by academics, consultants and representatives of research institutes. Working party reports would also tend to belong to this category. The writers of these papers vary in their experience of the workplace and are very concept bound, and seek to influence the direction of the development of workplace assessment by illustrating the relevance of their theoretical position by drawing upon anecdotal studies and empirical research. The papers are generally well received as a bridge between theory and application, but their actual impact on workplace practice is erratic.

Empirical studies (sometimes referred to as 'pure research') seek to test hypotheses relating to the efficacy and impact of workplace assessment strategies. These papers are typically written by academics and are published in research journals. The writers generally have very little contact with the workplace and are constrained by their theoretical underpinnings and the strictures of research design. The papers are generally not well received (or understood) in the workplace, and their impact would appear to be limited to the encouragement of further empirical research.

The great bulk of the literature in this area are conceptual studies, closely followed by anecdotal studies, with very little empirical research. The following discussion draws upon all three forms of research, reporting findings in the following 14 areas:

- different forms of assessment in workplaces
- different theoretical underpinnings of workplace assessment
- the relationship between classroom assessment and workplace-based assessments
- competency-based approaches to workplace assessment
- the use of assessment centres
- record-keeping and interpretation
- the selection and training of assessors
- the recognition of prior learning
- equity issues in workplace assessment
- quality assurance mechanisms
- the cost and funding of workplace assessment
- employer and employee attitudes to workplace assessment
- impacts of assessment on employees, trainers and managers
- links to human resource management

These themes represent a clustering of the literature in an attempt to reflect the wide-range of issues relating to assessment in workplaces. The paper concludes with a brief review of research needs and an extensive bibliography.

There are many other lines of investigation that might be pursued within this area of interest. The recent review by Toohey et al. (1995) provides an excellent overview of on-the-job and campus based competency assessment. Their review addresses the following topics:

- aspects of performance which should be assessed in order to certify competency
- how competency should be assessed and which methods are appropriate to use
- whether competency assessments should be grades
- where competency assessments are best carried out
- who should assess and certify competency

There are also some excellent general references on competency-based assessment, specifically the DEET Assessment series (Rumsey 1994; Toop et al. 1994; and Hager et al. (1994), and the contributions of McCurry et al. to *Developing a competent workforce* (Gonczi [ed.] 1993). More recently another DEET/NCVER publication *Key aspects of competency-based assessment* (Hall [ed.] 1995) has been released with contributions covering:

- research in competency-based assessment (Hall)

- who assesses (Bloch et al.)
- validity (Cropley)
- the assessment of knowledge, attitudes and values (Hager)
- assessment at higher levels (Hager & Gillis)
- self-assessment and peer-assessment (Hawke & Griffin)
- still counting for nothing? (Travers) [A study of women entering or re-entering the labour market]
- needs of special workers (Saunders & Misko)
- competency-based assessment in remote locations (Docking)
- moderation (Foyster)
- use of technology (Docking & Foreman)

Different forms of assessment in workplaces

Assessment is a part of many different activities in the workplace, including training, recruitment and selection, the recognition of prior learning, performance appraisal and quality management. While Spicer (1992), Rumsey (1993b) and Lloyd (1993) describe assessment as a normal part of everyday work, and Hunter (1992) and Rumsey (1993a) recognise assessment as an integral part of a range of human resource management processes, the review of literature reveals little awareness of the conceptualisation of these activities as assessment contexts, apart from those directly linked to training. This quarantining of assessment limits the application of assessment principles and encourages the dominance of models of assessment derived from education, which in turn are derived from psychometrics.

Research into workplace assessment needs to expand its underpinnings to include research that has been conducted in other related areas of human resource management and human resource development – both to introduce a wider range of assessment paradigms and to increase contiguity and application.

Different theoretical underpinnings of workplace assessment

There are a number of different approaches to workplace assessment present in the literature, most of which represent themselves as 'competency-based' models. Sowter (1993) reflects on the confusion arising from such an array of disparate models and Oliver (1993) draws our attention to confusion arising from the terminology that is used. There are approaches drawn from latent trait or item response theory (McGaw 1993; Griffin 1993, 1995; Masters 1993a, 1993b), others adopt a task-based approach (Linn et al. 1991; Ballenden 1992; Jarick 1992; Spicer 1992; Francis 1993), a holistic or integrated approach (Hager & Gonczi 1993; Hager 1993, 1995; Johnstone 1993; Smith 1993; Gonczi 1993; Hawke 1996; Hager & Gillis 1995), or an evidence-judgement approach (Gibb 1993; Bailey 1993a, 1993b, 1995), while others use 'acquisition/application' to formalise assessment (Ferguson 1996), and others suggest more traditional methods (Thomas 1993; Catts 1993). Each model is based on a distinct set of assumptions that simultaneously limit their application and provide valuable insights into the assessment process. There is a considerable body of literature in this area, generally conceptual research, promoting specific models, and at times depreciating other models. Toop (1993) provides a useful comparison between measurement models and evidence/judgement models.

Docking (1987a), Costa (1992) and Manson (1993) reflect upon the fundamental requirements for good assessment, van Berkel (1996) draws our attention to the need for well specified agreed benchmarks, Simmons (1996) emphasises the value of the specification of an evidence guide, and Debling (1991) and Watson (1993b) remind us of the dangers of fragmentation when adopting a competency-based approach.

There is a tendency in the literature (and in practice) to adopt a 'monotheoristic' approach to assessment – to maintain that one approach can (and should) serve all needs. Such a view is fraught with dangers:

- Learning and performance in the workplace is complex and multidimensional and no one theory of learning or measurement can adequately reflect that diversity.
- Adopting a particular theory proscribes certain questions and activities so that validation of the theory becomes self-fulfilling.
- Adopting a particular theory may change practice to conform to the theory but not to serve the needs of the workplace (enterprise and employee).
- Most theories have been borrowed from other fields and carry with them inherited qualities that may be benign in their field of origin but quite dangerous in the workplace.

Research is needed to identify the kinds of decisions best served by each approach to workplace assessment, and strategies identified to enable each model to co-exist within a single coherent system.

The relationship between classroom assessment and workplace-based assessments

The relationship between classroom assessment and workplace assessment has been recently explored in a number of papers. Many workplace assessment practices have been borrowed from classroom assessment methods with varying degrees of success (Bloch 1996; Misko & Guthrie 1996; Millan 1996). In general, there is a tendency to view classroom assessment as the 'ideal' to which workplace assessment should aspire. Docking (1991a), Docking (1992), Casey (1993a) and McDonald (1993b) argue that workplace assessment methods need to be developed independently of classroom models. Attempts have been made to combine information derived from workplace assessments and from classroom based assessments, also with varying success (Docking 1996b), or to bring the workplace into the classroom through role-play or simulation (Porter 1993; Clayton & Johnstone 1996).

Other studies separate the classroom from the workplace by distinguishing between 'learning outcomes' and 'competencies' (Byrne 1993) and by focussing on the differences in culture between the two contexts (Manson 1992).

Docking (1987b), MacFarlane (1993), Toop (1993), Praetz (1993) and Resnick & Wirt (1996) reflect upon the need for greater integration between classroom assessment and assessment in the workplace, and Thomson (1996) comments on the need to use each context to make the most of the advantages of each, or to reduce costs (Bloch 1993). Fitzherbert (1993) argues that 'parity of esteem' is essential to an integrated approach, others draw attention to the need for consistent outcomes across both contexts (Carnegie 1992; van Berkel 1996). Casey (1993b), Van Der Wagen (1995), Van Der Wagen (1996) and Hummel (1996) provide some examples of successful integration.

Further research is needed into the interlinking of workplace based and classroom based assessments to ensure that each is able to contribute mutually respected evidence of performance to promote the integration of training between these contexts without one prejudicing the other.

Competency-based approaches to workplace assessment

The adoption of competency-based approaches has been met with various levels of enthusiasm and achieved with varying degrees of success, both in Australia and overseas (Kearns 1993; Thomson 1993b). The literature provides evidence of application across a wide range of industry areas, including: trade training (Docking 1987b; Murphy 1990); teacher training (Harris 1993); clerical and office work (Ballenden 1992, 1993; Fitzherbert 1993); science technicians (Johnstone 1993); cooks (Lewis 1992); nurses (Percival 1992); building and construction (Wilson 1992; Hancock 1993); rural studies (Porter 1993); metal trades (Thomas 1993); in the plastics and rubber industry (Fahey 1993); and in the defence forces (Jorgensen et al. 1993; Lloyd 1993). The literature also reveals considerable differences about the idea of competency-based assessment, and examples of inadequately specified standards, inappropriate evidence gathering strategies, the invalid interpretation of evidence, and the failure to recognise that adopting a competency-based approach represents a cultural change.

Research needs to be conducted into the fundamental pre-requisites for the successful implementation of competency-based assessment within workplaces. The effectiveness of different strategies of assessment also requires further exploration.

The use of assessment centres

Assessment centres offer the potential to provide for the conduct of economical, rigorous and relevant assessment. Assessment centres may be located within a training campus, or may be an extension of a training centre of a large enterprise, or mobile assessment centres could be used to support learners in remote locations. While there is very little research reported of their application or effectiveness in Australia (McDonald 1993b; Rumsey 1993b), they have been the focus of considerable attention in the US(Wingrove et al. 1985; Sackett 1987; Klinoski & Brickner 1987; Feltham 1988a, 1988b).

Assessment centres are characterised by the use of a wide range of assessment techniques, including work samples, simulations, paper and pencil tests and interviews to assess individuals or groups. They are often linked to a particular industry area or occupational grouping, and have been found to be effective in predicting future career success, although the reasons for that effectiveness are elusive (Wingrove et al. 1985).

Research needs to be conducted into the potential use and effectiveness of assessment centres.

Record-keeping and interpretation

The adoption of competency-based approaches creates some difficulties in record-keeping and the interpretation of records. In particular, the approach involves the retention and interpretation of large amounts of data, and carries with it the risk that simplistic analysis methods might be adopted (such as the use of marks) which may destroy information, distort training or promote a fragmented view of competence. Van Berkel (1996) emphasises the need for an accurate and accessible recording system. A number of papers report the use of information technology to deal with the problem of data management and analysis (Hunter 1992; Dutneall & Said 1992; Jarick 1992; Jorgensen et al. 1993; Kerwood 1993; Docking 1995b; Docking & Foreman 1995). Generally record-keeping systems tend to reflect the data sources rather than the kinds of decisions that (might) need to be made from the data. There is a tendency to ask 'what can we assess?' rather than 'what do we need to know?'

The interpretation of competency records also attracts considerable interest. A number of writers debate the issue of grading, including Van de Graaff (1990), Lloyd (1993), Peddie (1993a), Peddie (1993b), Toop (1993), Thomas and Neeson (1993), Docking (1995a) and Quirk (1995). There is confusion around the grading of competencies and grading by competencies. Others opt to interpret competency records by profiling (Neeson 1993; Guthrie 1993). There is also some debate about the level of detail that needs to be recorded (Debling 1991; Thomson 1993a; Docking 1993; Toop 1993).

Research is needed into different analysis and interpretative techniques for competency-based records that will support training and line-management decisions.

The selection and training of assessors

There has been some research effort into who should be assessors and how should they be prepared. The tendency has been to expect that trainers automatically make good assessors (Ormond 1992; Gibb 1993). Supervisors are seen by some as suspect (Bloch 1996) and by others as ideally placed to carry out effective assessment (Docking 1990; Newton 1992; Ballenden 1992; Spicer 1992; Rumsey 1993b; Inglis 1996). Self assessment and peer assessment are also discussed (Fitzherbert 1993; Bloch 1993; Hawke & Griffin 1995), and others recommend the use of a wide range of assessors (Martin 1993; Smith 1993).

In a very comprehensive report Bloch et al. (1995) draw our attention to the urgent need to understand the requirements of assessors for high quality assessment. Most authors recommend training (Barry & Davy 1990; Thomson & Pearce 1993; Bailey 1993a). Assessor competency standards have been developed but these tend to be a list of tasks to be performed by assessors (Jones 1993; Cseti & Nissen 1996), rather than a statement of the qualities of an effective assessor (Docking 1992; Hancock 1993; van Berkel 1996). There is also a need to distinguish more clearly between the evidence gathering phase and judgement phases in this regard.

Further research is needed into what personal qualities (competencies) are required by assessors for effective evidence gathering and for effective judgement.

The recognition of prior learning

The recognition of prior learning has attracted a modest interest from research (Dugas & Horrocks 1993; Holland 1993; McDonald 1993a, 1993b; Watson 1993a). The initial emphasis was on the recognition of prior qualifications for further qualifications (Brown 1990; Kirby 1990; Davis 1992; Casey 1993b), but this is now changing to focus on the recognition of current competencies derived from any source for application in the workplace (Stafford 1992; Ormond 1992; Walton 1993; Davis 1993b). Strategies for gathering and assessing documentary evidence (such as portfolios) are now being refined (Rutherford 1996). These are being seen as also having potential for on-going assessment.

Research is required into the special conditions that apply to the assessment of prior learning, particularly portfolio assessment.

Equity issues in workplace assessment

There are a number of research papers that address the issue of equity and assessment. Equity issues range from access to training and assessment programs; the costs of training and assessment; access to workplaces for assessment; gender bias in assessment processes; language, learning style and culture; overseas trained workers; and access to appeals (Docking & Iredale 1989; Ramsay 1992; Rumsey 1993b; Travers 1995; Misko & Saunders 1995; Docking 1995; Moy 1996; Bloch 1996; van Berkel 1996; Athanasou et al. 1996). There is an expectation that competency-based approaches will improve equity (Costa 1992), but this will take positive action to achieve (Connor 1993; Travers 1995).

Research is needed to determine how we can ensure that assessment systems and processes in the workplace do not perpetuate inequities in workplace decisions.

Quality assurance mechanisms

Equity is but one aspect of quality in an assessment system. Other quality factors include validity, reliability, flexibility and fairness. Linn et al. (1991) suggest that the traditional conceptualisation of validity (content, predictive and criterion) should be extended to include such aspects as intended and unintended consequences, cost, meaningfulness and transfer to the workplace for performance-based assessment. The last of these is of particular relevance to workplace assessment. Cropley (1995) also suggests an extension of the concept of validity to embrace whole assessment systems.

Bloch (1993) reports a British study that lists a number of steps that can be taken to maximise quality. These are (in order of significance):

- specify standards clearly and with adequate precision
- ensure that the assessment process is valid (i.e. relevant to the standards)
- train assessors to interpret the standards consistently
- provide opportunities for assessors to network and compare practices
- establish verification procedure

It is interesting to note that this is in the reverse order to that usually taken to assure quality. Spicer (1992), Cropley (1995) and others argue along similar lines.

Further empirical studies of the critical requirements for quality workplace assessment are needed to ensure that high quality can be attained at reasonable cost.

The costs and funding of workplace assessment

There is little empirical work on the costs and funding of assessment in the workplace. It is taken as an article of faith that the returns from effective assessment will outweigh the costs. In particular, the benefits expected to accrue from a sophisticated understanding of the competency resources of the workforce include:

- better use of the internal labour market (and reduced costs in redundancy and recruitment)
- better targeted training
- reduced accident rates
- higher quality production and reduced wastage
- a more flexible workforce

A recent study commissioned by the Australian National Training Authority (ANTA 1996) identified the chief costs as:

- designing the assessment model
- establishing recording and reporting arrangements
- designing assessment materials
- designing enterprise application of the assessment model;
- conducting assessments
- advising registered providers issuing the credential
- providing access to appeals
- conducting ongoing maintenance and review

Using current exemplars of assessment systems the study was able to provide indicative costs for each of these components.

Bloch (1993), Francis (1993) and the ANTA study have suggested strategies to reduce costs. These include establishing partnerships with training providers, using the learner to gather their own evidence of competence, defer formal assessments until success is most likely, use actual workplace production as evidence of performance, and assess more than one competency at a time. Efforts to reduce cost, however, must not impinge on the quality of assessment – particularly in the workplace where an incorrect assessment may lead to accidents or wastage (Cropley 1995). The suggestions of Francis

(1993) are of concern in this regard, as he recommends limiting the number of assessments, using 'hearsay' evidence, and restricting the extent to which application is measured.

The ANTA study also considered alternative funding options, and suggested that establishment and maintenance costs should be borne by government, and operational costs by the user (individuals, enterprises and industry).

The study suggested a number of areas for further research. In particular, it recommended further work be done to:

- assess the relative efficiency of alternative industry assessment models
- analyse the feasibility of achieving economies of scale for recording and reporting arrangements
- validate the cost ranges identified in the study
- identify the cost to enterprises of industry assessment
- market test the price of assessment
- identify the cost of assessment within training programs

A number of these issues are now being explored in a trial of assessment centres in funded by the Office of Training and Further Education in Victoria.

A detailed study of enterprise and individual costs and benefits of assessment in the workplace is required to establish the viability of workplace assessment as part of enterprise practice.

Employer and employee attitudes to workplace assessment

Given that the costs and benefits of workplace assessment have not been definitively determined, it is not surprising to find that there are widely divergent attitudes to assessment amongst employers and employees evident in the response to development in this area. While substantial effort and resources have been committed to developing competency standards for most occupational groups, developing assessor standards and training assessors, there is still a good deal of reluctance to take workplace assessment seriously. Numerous studies located through this research are based on the development of assessment processes in the workplace, but these represent a very small segment of the workforce.

Unions have been staunch supporters of competency based training and assessment (Carnegie 1992). In particular the approach was seen to address problems inequity, particularly relating to the recognition of skills acquired on the job for employment and qualifications. The employer view overlaps substantially with that of the unions (Spicer 1992), but differs in its prime focus on organisational efficiency and flexibility. Spicer argues strongly for the 'assessment of the performance of people after training on the job' (p.2) to 'satisfy employees that they are competent; to provide feedback on the quality of the training; and to satisfy the employer that the investment in training has produced the desired level of performance in members of the workforce' (p.3).

There is, however, a lack of empirical research that reflects upon the attitudes of employers and employees to assessment in the workplace. While their attitudes are likely to be influenced by a complex range of factors (such as costs and benefits) the continuing development of assessment in the workplace will be hampered if these views are not understood.

Research is required into the attitudes of employers and employees to workplace assessment.

Impacts of assessment on employees, trainers and managers

Although there are calls for research in this area, there has been little active research into how assessment in the workplace can contribute to the work of employees, line managers, workplace trainers and human resource managers. Writers such as Docking (1987b), Carnegie (1992), McFayden (1992), Murphy (1993), Rumsey (1993b), McDonald (1995) and van Berkel (1996) discuss potential impacts. Other papers in this area reflect specifically upon the positive impact of competency-based approaches on workplace change (Davis 1993a); quality and productivity (Kelso & Robinson 1992; Spicer 1992; Seary 1993); employee motivation and retention (Newton 1992); the development of learning processes (Barret-Pugh 1996); the quality of training (Butterworth 1993); and community benefits and IR (industrial relations) issues (Carnegie 1992). To keep our feet on the ground Cropley (1995) draws our attention to the perils of incorrect assessment for enterprises.

There is an urgent need to explore the relationship between assessment in the workplace and enterprise productivity. Research is also needed on the benefits for employees.

Links to human resource management

To what extent is workplace assessment integrated with human resource management activities? The literature indicates that there is a growing awareness of the importance of establishing this link (Bishop 1993; Sheldrake 1993; Cseti & Trost 1996; Casey 1993; Davis 1993a), evidenced in studies that illustrate forms of competency-based management (Docking 1991b; Carter 1993; Hunter 1992; Breekveldt 1993; Docking 1996a).

Research is required to establish strategies for linking assessment and assessment records to human resource management processes and decisions.

The need for further research in workplace assessment

Very few of the papers reviewed are based on empirical research (McDonald 1993b) – the great bulk are conceptual studies that promote specific strategies based on strong philosophical grounds but with little empirical support. Hall (1995) describes these as 'personal opinion or popular rhetoric' and urges us to 'move on from discussion papers, working party reports, general descriptions and points of view' towards 'well-designed and funded applied research' (p.7). The review above suggests a number of lines of research that need to be pursued to move on from the exploratory phase of work in this area to development that is more empirically based.

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8 The costs and benefits of training and assessment

Rod McDonald

THERE HAS BEEN, on the whole, little serious research on costs and benefits focussed on vocational education and training, or that could be applied to it. This has resulted in a lack of information in three main areas.

The first and most obvious one is that, without cost analysis, there is not the information to enable decisions on policy, administrative procedures and practice to be made on a rational basis. Cost analysis has the potential to help all those involved in training to teach and assess as effectively as possible, within the constraints of fixed resources. It can help enterprises understand what they actually spend on training,[1] and it may help them spend less to achieve the same ends. More generally, coupled with other information on inputs and outputs, it can help answer the question for the community of 'exactly what are we paying for and what are we getting?'[2]

This is even more important given the recent developments in user choice, comparisons of costs between different States and different providers, and a generally more open training market. The availability of data does not, of course, guarantee its use in the formulation of policy or in daily practice, but it at least provides the possibility.

A second reason why more effective research is important is to increase the awareness of practitioners of the relevance of costing issues and the effect that they have on all aspects of education and training. Trainers and teachers have not traditionally been concerned about cost, nor have they been paid to be – although this is changing with devolution of budgetting in many public systems. Their prime concern is with educational benefits, normally defined in the individual sense, and normally in isolation from the broader issues of work-effectiveness and societal context. On the other hand, administrators and policy-makers are under considerable pressure to do more with less, and cost and contextual factors play an overarching role. Ways of helping practitioners to think about costing issues should help the two sides work more effectively to produce better systems.

This is currently needed to put in perspective the expectations of what will be achieved by workplace learning. To quote the British Training and Development Lead

Body's guide (1992) for implementing a particular set of competency standards, but true more generally:

> *Ideas that do not fulfil their promises are soon rejected. Enthusiasm for the standards and the idea of 'quality performance' are necessary to convince others and to get action. It can be dangerous, however, if it leads to overstatement of the benefits . . . The standards specify what is expected of people. They will not solve all your problems.*

The third reason arises from the fact that micro costing processes are about models of education and training – they are not, primarily, about economics. A study of the costs of a particular model will inevitably lead to all concerned learning more about what they are doing and questioning why. No examination of costing issues is going to provide unequivocal answers, but it may lead to a questioning of the relative importance of various objectives and an exploration of the different ways they can be attained.

Our level of understanding of costing issues, however, is low.[3] As is the level of activity: in a UK survey, only three per cent of firms reported making a cost-benefit analysis of training (Deloitte 1989). The last few years have seen the development of expertise in standards development, curriculum, staff development and, to a lesser extent, assessment; but there has not, until now, been the opportunity to develop expertise in costing. Not only is there little expertise, but there is much disinformation and a lack of some basic understanding. Little of the available expertise is available in a form likely to be useful to practitioners, with the notable exceptions of Harrold (1982) and Levin (1983). There are many examples of costing studies carried out which ignore important factors, of simplistic lists of items to be considered, and so on. Drake's landmark 1982 review of the literature stated that 'Defective theories, unsuitable research designs, and inadequate reporting abound. Evidence is sometimes not much better than anecdotal' (p.103).

There is little to suggest that the picture has changed much in the last decade.

The one area in which there has been an increase in useful research is in macro-economic studies. Recent examples include the development of National and State relativities, the costing of State profiles, and the National Unit Cost Study. These studies have added significantly to the information available for policy analyses.

However, the focus of this paper is the micro level, and one unfortunate side-effect of the above research is that it may cause a perception that there is more useful recent research in all aspects of this field than there really is.

Another concern is that some of the current research being commissioned by government agencies is not yet publicly available, so cannot be quoted.

The issues

The research issues are different for different groups:

Enterprises

Enterprises already involved in competency-based assessment need the means to analyse the outcomes in terms of their needs, and to set these off against the costs. If this is done there is more chance that various alternatives will be evaluated on their merits, so that there is:

> *. . . not the production of an exclusive criterion for making decisions about training, but a means of improving the accessibility, quality, and relevance of information with which management has to make a judgment.* (Drake 1982, p.106)

Enterprises not yet involved in competency-based assessment, on the other hand, need information to help them decide whether, and at what level and in what way, to implement competency-based assessment. This will need to be a conscious decision as a relatively large re-orientation will be needed which will be likely to involve educational, personnel and industrial issues and may well touch organisational issues as well. As it will rarely, if ever, be possible to *prove* a link between a particular training approach and improved productivity, organisations will benefit from guidance which will enable them to estimate the costs for particular outcomes compared to the costs of current training and assessment arrangements.

Providers of education and training [4]

Training providers need to know where the greatest costs lie, how much leverage there is in them, and how they can develop more cost-effective (not just cheaper) systems. This will require the development of methodologies and protocols.

Individuals

The costs incurred by individuals are often neglected in cost studies of training situations. However these costs can be substantial, as recent studies of the amount of time spent by applicants for RPL has shown.

Previous analyses of costs can be categorised as either 'cost-benefit' studies' (in which all the costs and benefits can be measured in dollar terms) or 'cost-effectiveness' studies (in which it is not possible to measure all variables in dollar terms). Whilst cost-effectiveness studies are often more appropriate to education and training activities, they carry an in-built disadvantage in that it is then difficult to compare approaches that have different outcomes.

A study of different models of apprentice training (Dess 1991) is an example of a cost-effectiveness study; it compared the effectiveness of achieving particular outcomes.

More recently, cost-benefit studies have been undertaken of different models of apprentice training (Taylor 1989), of the effects of alternative training strategies (Thomas 1969), of the effects of vocational 'academies' in schools on student retention by Stern et al. (1989), of special access programs in the US, and of the difference between structured and unstructured on-the-job training (Jacobs 1994).

Consideration of outcomes

Much of the work done on competency-based assessment so far has been to do with the development of standards, preparation of new curricula in TAFE colleges and other training providers, followed by the introduction of a competency-based approach in some professions and industries, and some particular enterprises. There has been little opportunity, so far, for examining the outcomes. However, it is necessary to think in these terms. The reason for this is *not* that it is often possible to measure the benefits, but that the costs of any activity depend on how it is carried out, which in turn depends on the desired outcomes. Thus any consideration of costs must consider outcomes as well.

Links between costs and outcomes

In doing this, the most important point is that any discussion of outcomes, or benefits, needs to acknowledge that there are no generally-agreed models for the link between training/assessment and the extent of learning, personal benefit, social benefit or, in companies, with organisational effectiveness and productivity. This is not the place for a detailed explanation of the futility of such studies, but the reasons broadly focus on the difficulty of attributing particular outcomes to a certain training and assessment strategy, or, in many cases, to any training whatsoever, and on the danger of trying to measure benefits by concentrating on easily-measurable outcomes, especially as the most relevant ones are often the most difficult to measure.[5] There is also the issue of causality: does training lead to higher productivity, or is it just that more productive companies spend more on training as part of their personnel policy?

Assessment as an exercise in risk management

All decisions about assessment methods involve a consideration of risk: assessment procedures only provide a 'snapshot' of expertise at a particular time in response to a particular set task, based on application to particular examples, from which general inferences are made about competence. However, obviously no single assessment exercise is completely reliable.

Although it may be rarely stated in terms of 'risk', employers and training providers establish procedures and modes of assessment so that the risk of an incorrect assessment is acceptably low. This normally takes the form of making an assessment only as precise as it needs to be for the stage of the course, the level of qualification, the importance of this assessment to the aims of the qualification, or the requirements of a professional area, and the risk to the community of incompetence. (For example, the risks to the community are rather greater for a TAFE graduate in, say, an electrical course than they are in an area in which there are fewer potential implications for public safety of errors in practice.)

Notions of 'risk' and 'precision' are at the core of any discussion about the costs of assessment, but are often not acknowledged.

Calculation of costs

The costs of training and assessment are not fixed: they can be raised or lowered according to the outcomes required and the implementation strategy chosen. They will be affected by the following factors:

The objectives

The cost will be affected primarily by the objectives which it is to meet – e.g. 'what level of competence is sufficient in this situation?'

How precise assessments need to be

Debling and Stuart (1992), among others, make the point that the precision required in assessment will vary according to circumstance and occupational area. They suggest that the scale of investment should reflect the value of avoiding or reducing the chance of critical failure, and the potential of that occupational area to contribute to productivity or cost reduction.

What is deemed to be an acceptable level of confidence in the result

For example, at the enterprise level, Bloch (1993) quotes an example from the Textile Clothing and Footwear industry in which language interpreting during assessment is carried out by the peers of the person being assessed: 'the cost of employing interpreters for each assessment was balanced against the 'risk' involved in allowing a fellow-worker to participate in the assessment process and possibly assist the candidate.' At the national level, the last few years have seen considerable discussion about a 'low skills equilibrium' into which the UK is alleged to have fallen – under which a low level of training leads to an under-skilled workforce which leads in turn to a lower expectation on the part of employers of the responsibilities that they expect employees at various levels to accept. One of several examples is that given by Prais et al. (1991) in a comparative study of productivity in English and German hotels.

The approach to measurement of competence

For example, will an 'atomistic' approach ('ticking the boxes') or a holistic approach (an integrated assessment scheme) be used in assessing trainees against competency standards? (An explanation of the way that holistic assessment has been used in certain professions is found in Gonczi 1994.)

The costs will also be affected by the level of commitment within the organisation. For a company, a critical factor will be the level of resource commitment that it wants to make; this is a strategic decision which will impact considerably on costs. Its commitment may be 'progressive' (involved in industry discussions and the development or adaptation of standards), 'cautious' (monitoring developments across the industry and implementing a pilot study) or 'passive' (monitoring competitors and making necessary adjustments).[6] Internally, costs will be affected by the administrative arrangements – for example how quickly backlogs of staff are to be processed.

These factors, and the effect they will have on costs, emphasise the need for studies to be of cost-effectiveness, not merely cost. The question to be addressed is 'Can better learning and assessment occur for the same cost?' or 'Can equally good learning and assessment occur for less cost?' (Hawes 1990).

Although it is often assumed (correctly) that analysis of the *benefits* of education and training is highly subjective, the same is not normally assumed of cost calculations. It should be. Cost analysis does not offer less subjectivity and less use of judgment: it offers a greater quantity of information, and it offers more relevant information; this can then lead to more systematic and open judgment about the use of resources for training. Often, however, cost studies and cost-benefit studies make superficial, unstated assumptions about the costs involved. Some of the most important watchpoints are:

- Costs are not objective – the calculation of costs is a subjective activity, with the results dependent on the assumptions made.
- Costs are not always financial.
- Costs and their associated benefits always take place within a defined time scale.
- Opportunity costs are not always what they seem – the *real* cost of the time of those involved in training, for example, will be affected by whether they would otherwise be idle, whether there is temporary over-manning, or whether the costs can be assumed to be low for other reasons.
- Education is not the same as vocational training – if comparisons are to be made between programs that train to the same level in terms of specific skill, but which have different amounts of more general skills, this will need to be taken into account.

For the above reasons it is vital that all cost analyses specify exactly what assumptions have been made and how sensitive the results are to these assumptions.

Mention should also be made of aggregate studies – studies which use, for example, national statistical data and average earnings to draw general conclusions, and which ignore what actually happens in training. The literature is unanimous that at this stage of our understanding, aggregate studies have only a limited benefit, often producing ambiguous results. There is, in fact, a danger of them giving a misleading picture of the costs of training: too much depends on factors such as the actual conditions, the training objectives, the labour market conditions, not to say peculiarities of occupation. Much more work needs to be done at the micro level, by people with a good understanding of the actual conditions under which training and learning actually occur, before aggregate studies will be able to inform us about the picture in the economy or whole industries – we need, in short, to get inside the 'black box'. As Drake states:

> *. . . critical features of a training process, inside the black box, are rarely reported by analysts, never controlled for, and may – through variation – invalidate the generalisability of the conclusions of a cost-effectiveness study.* (Drake 1982, pp.106–7)

To put it another way: the more micro-level the study, the less remote the effects are likely to be from training, and the less uncertainty there is about cost allocation (for example, see Cumming 1971).[7]

Aggregate studies do have a purpose – they are useful in pointing the way to questions that need to be addressed, information that is not available, or to research issues. In the same way, State-to-State and international comparative studies are useful in suggesting questions that need to be addressed, but not for direct use in policy and planning.

Issues and suggested research

The main message in this paper is that better cost analysis can contribute significantly to the effectiveness of vocational education and training. This does not require a complicated economic treatment: it does, however, require careful analysis with a full knowledge of all the variables inherent in training and assessment situations. This will not produce exclusive criteria for making decisions, but it will provide, as Drake has said, 'a means of improving the accessibility, quality, and relevance of information with which management has to make a judgment' (Drake 1982, p.106). The main issues are:

The scale of training and assessment

There is little or no recent information available about the scale of training and assessment – in particular, we do not know what sort of commitment of time is involved State- or nation-wide in the thousands of learning and assessment tasks that occur daily.

Information about cost-effectiveness

Information is needed on:

- *how* training and assessment results in more valid or more effective assessment
- where the greatest costs lie
- how sensitive costs and benefits are to changes in particular aspects

Lack of experience

Although the possible methods and approaches are relatively straightforward, there is a lack of experience in applying them to vocational education and training contexts.

If these issues were addressed, enterprises and training providers would be in a better position to address the underlying question: 'what can be done to minimise cost while maintaining quality?'

To address the above issues, two complementary activities are suggested[8]:

The scale of competency-based assessment

A 'map' should be prepared on training and assessment, both in workplaces and in training providers – the number of workers/students involved, the number of courses (or activities within them), and how they are distributed, and the form in which assessment is recorded.

Information about cost-effectiveness

A number of case-studies should be carried out on particular training activities – both in industry and in training providers. A caution is necessary here: as described previously, these studies will rarely be comparing like with like. In fact, as it is hoped that competency standards will bring with them more effective assessment and better-defined outcomes, it would be strange indeed if the outcomes were exactly the same as before.

Particular focus areas will need to be:

- the benefits of training and assessment

  For example, examining critically the list of possible benefits above and the extent to which they apply in particular cases.
- information on key sensitivities
  - that is, variables that will affect cost (e.g. scale of assessment operations policies/requirements on record-keeping); this could best be done by picking several areas in which there are different cost structures and arrangements
  - description of 'hot spots' – factors which are particularly important in influencing the cost
  - analysis of approaches taken by equipment vendors[9]
- lack of experience

The case studies suggested above will, in time, generate robust methods of costing – not only for competency-based assessment but in education and training generally – which can be easily applied within TAFE systems and industry. Even on the many occasions when the exact results of a cost analysis are not transferable to a different college, a different company, a different occupation, the methodology can be, enabling this sort of analysis to occur routinely.

This will enable procedures and materials to be developed, aided perhaps by structured staff development. This will, in turn, lead to an increased knowledge of costs, understanding of processes, and an appreciation as to how variations in them can affect the outcomes of training.

Concluding comments

Over 25 years ago a book on cost-effectiveness analysis claimed that we needed to be able to achieve 'better combinations of relevance and arithmetic' (Quade 1967). The need to develop such procedures in vocational education and training is still there, but is achievable. However, only when this is done will the various stakeholders be in a position to interpret the available information and engage in informed discussion about various alternatives: assessing effectiveness as well as assessing costs.

Acknowledgement

Much of this paper is adapted from two papers prepared for the Assessment Centre for Vocational Education (McDonald 1994, 1996) whose permission to reproduce parts of it is gratefully acknowledged.

Endnotes

1 For example, a British study showed that firms spent over three times as much on training as showed up in their accounts (Deloitte 1989).

2 This is particularly important given the equivocal answer to the question of whether vocational education and training itself, as carried out in Western societies, is cost-effective in the broad macro-economic sense. A recent review by Lewin (1993) concludes that it may or

may not be, depending on the context and the criteria. Given such ambiguities, it is perhaps not surprising that governments are showing an increasing interest in how public funds are spent on such activities.

3 The one other area that requires more attention is the perpetually difficult area of the relationship between industry and education and training providers.

4 Much of the discussion in Australia has focussed on the introduction of competency-based training and assessment into TAFE systems. This is in marked contrast to the United Kingdom, in which further education colleges have played a relatively minor role as just one of many training providers, and there has been much more emphasis on the implementation of competency standards within companies. The way in which this has been implemented has led to considerable problems and a low level of confidence in the new qualifications.

5 In addition to these concerns, Shackleton (1993) has added a number of problems related to the 'human capital' metaphor (the different use that some processes make of physical capital rather than human capital, economies of scale for larger companies, and substitution of some types of capital for others), the difficulties of measuring returns (the use of team work, the fact that the returns from training may take place over several years with the link to training becoming increasingly tenuous, the fact that different individuals respond differently to training) as well as the fact that training performs a number of other functions apart from its obvious one (screening, suppressing competition in the labour market, and other social/political objectives). All of these will confound attempts to draw a direct link between training and productivity.

6 These terms come from Dent Lee Witte (1991), in a document developed for the UK Banking Lead Body, which was responsible for developing competency standards.

7 An example of this can be found in the operation of the training market in the United Kingdom. Due to deregulation and a low level of controls and quality measures, and with funding providers being tied to the number of people per year trained and assessed as 'qualified' (in competence terms), a concern has been expressed by many is that this will result in colleges only accepting as students those who, they feel, have a good chance of qualifying in minimum time (for example, Steedman 1994). This is one variable that would be likely to be picked up in a micro-level cost study but would most likely be missed in a macro-level study.

8 The development of the ideas in this section was helped by discussions with Dr Phil Mackenzie of ACER, whose contribution is gratefully acknowledged.

9 Equipment vendors have a well-defined interest in carrying out effective training: provision of effective training will minimise the number of callouts under guarantee, and lead to customer goodwill. Practices of equipment vendors could repay study as they have a well-defined and discrete commercial motive for training. (I am grateful to Gregory Wurzburg of OECD for this suggestion.)

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9 More strategic, more critical, more evaluative: Perspectives on research into workplace learning and assessment

David Boud, John Freeland, Geof Hawke and Rod McDonald

THIS CHAPTER DRAWS together some lessons, from different perspectives—from the direction of policy, practice, and researchers—for research in workplace learning and assessment. Our conclusions are based on the papers in this book, the discussions that took place during the national Colloquium, and our own experience in policy forums, in working with practitioners of vocational education and training, and from our own involvement in VET research.

This book is about workplace learning and assessment: this is the focus of the papers we commissioned which form the chapters of the book, and it was the focus of the Colloquium which contributed to our overall understanding of the area. One of the most striking conclusions from our analysis, however, is that much of what we conclude, although it is focussed on workplace learning and assessment, could have been said about any area of VET research. It seems that workplace learning is to some extent typical of VET research more generally.

A related point is that there is little in terms of a research agenda that is dependent on training reform or the rate of change: these factors are critically important to those who work in the field, but do not appear to influence the research agenda.

Policy perspectives

Any analysis of the effect of VET research on policy raises some very important and quite disturbing questions for people engaged in policy analysis, development and implementation. The main message is that research has played a very small role in informing policy developments over the past decade. Moreover, most of the research into workplace learning and assessment has been undertaken after the event—as a consequence of the policy decisions which placed so much importance on industry ownership and provision of vocational education and training (VET). There are two main reasons why this might be the case: the focus of university researchers (until recently) on research into school-based education and higher education, and the lack of a culture used to using and interpreting research in the vocational education and training sector.

Given that the reality of VET policy development has not followed the patterns and processes the liberal rational problem solving model leads us to expect, and given that research has not played a significant influence on recent policy developments, it is important to identify just what has limited the value of existing research to policy makers; what research information and product policy makers need; and what questions research needs to address and answer if it is to exercise greater influence in the future.

The first point to make is that the answers to these questions is dependent on the context in which they are asked. The type of research answers needed by policy makers during a period of stability and development within an established framework such as that which pertained during the decade from 1974 were different from the type of answers required during a period of fundamental change such as has existed since the mid 1980s.

Given that a systematic VET research agenda was not developed during the former period this paper will focus on developments of the latter period, the present and possible future, and the concept of epistemological change throws light on the changes which were foisted onto a frequently resistant vocational education and training system. Analysis of major scientific changes, and, dare I say analysis of major personal and organisational changes, provide an understanding of the elements which constitute a critical mass for change. Those include:

- The *if it isn't broken, don't fix it* principle. For major change to take place, there has to be a strong and prevailing belief that the existing paradigm, organisational structure or way of doing things is no longer capable of providing adequate responses to prevailing issues or of meeting systemic or organisational requirements. Without such a belief there will be institutional and individual resistance to change. The impetus for such a belief does not have to emerge from the paradigm or system itself. Rather it can be imposed on the system by unforeseen and profoundly troubling external factors.
- The *if there isn't an obviously better system or way of doing things, retain the present even if it is not perfect* principle. Knowledge that the presently utilised paradigm, system or present way of doing things is not capable of solving all problems is not in itself sufficient to spark a paradigm shift/systemic change. Rather, people, organisations and systems have to be convinced that there is a better alternative, and that it is very likely to produce more adequate solutions/outcomes.
- The *if the alternative system or way of doing things realistically is not achievable do not dispense with the present arrangements* principle. Knowing that the existing paradigm or system is inadequate and knowing that a viable alternative exists are not sufficient to spark the epistemological shift if none of the players believe the alternative is available to them. It would be foolhardy to risk all in a major paradigm shift if the alternative is believed to be unattainable.

Even if these three principles can be met, there is still no guarantee that change will occur. Without a sufficiently strategic and strong coalition of forces for change, attempts to force change will be thwarted. Socio-economic and sociocultural change is very uneven and marked by both coincidences of and conflicts in interest and purpose. If the forces for change cannot stitch together an adequate coalition, change will not occur. Even with a sufficient coalition, there will be resistance to the paradigm shift – resistance expressed in the full diversity of creativity available to those who remain committed to the existing system or way of doing things, no matter the basis of their position.

We would argue that this is what has happened in relation to the reform of vocational education and training in Australia.

What policy makers need

What policy makers have needed in the past was not just an adequate research base, but researchers who were able to present their findings in ways relevant to the policy debates of the time. It is not sufficient to develop strong research and dissemination programs. Just as there is a significant time lag between the 'discovery' of new scientific knowledge and its application in the form of new technologies/products, there is also an implementation lag in social scientific research and application processes. This 'translation' problem is compounded by the political imperative to respond to issues and to be seen to respond now and not later. Governments cannot declare a moratorium on policy development until appropriate research findings are available.

In summary, the management and organisational theory literature points out that those framing policy draw on a number of perspectives. However, what policy makers particularly need now (and needed then) is stronger and more critically attuned research and dissemination programs combined with a greater ability to translate research findings so that they can inform the strategic policy making processes.

What has limited the value of research to policy makers?

Perhaps the best approach to answering this question is to identify the elements which contributed to the push for a major systemic change in the organisation and delivery of VET in Australia. The national training reform agenda with all of its constitutive parts evolved or rather was constructed on a set of beliefs about the context and nature of the existing system.

The economic context of the future VET system:

- We have to carve a competitive niche in an increasingly competitive global economy.
- We have to reconstruct and develop our value adding manufacturing and services sectors.
- We have to catch the high/information technology wave.
- The best way to do this is to have an open economy and a highly skilled workforce.

The failings and inadequacies of the existing system:

- It is controlled by bureaucrats and educationalists and is unresponsive to the needs of industry.
- The curriculum is largely content based and unresponsive to industry requirements.
- VET teachers tend not to have appropriate and recent hands-on workplace experience.
- It serves to protect skilled enclaves as opposed to facilitating articulation and skill transfer.

The existence of an available alternative mode of organising and providing VET which promises to more adequately meet the needs of a dynamic VET system in an open economy within a global market place. The features of the alternative system were identified in other countries and included:

- industry ownership and control
- increased industry financial contributions and direct provision
- competency as opposed to content-based curriculum
- work place delivery and assessment
- skill recognition, transfer and articulation

The construction of a strategic coalition of interests sufficient to put in place the reform agenda.

In many ways the last feature was crucial and, it was based on the many faceted nature of the rhetoric surrounding the reform agenda. In short it meant all things to all people:

- For governments it promised greater industry financial contributions at a time of fiscal austerity, and in addition it was assumed capable of delivering industry relevance, a more highly skilled workforce, all of the professed advantages of a competitive training market and, above all, international competitiveness.
- For employers it held the promise of increased industry control and relevance of VET, reduced bureaucratic triple jumping, and the hope of custom made enterprise based modularised competency training, increased efficiency and productivity, increased profits, and so on.
- For unions it held the promise of a more highly/deeply/broadly competent workforce capable of earning high wages and capable of assuming increased responsibility on the shop floor, career paths for all workers, proper recognition of existing competencies, and the hope of fostering increased equity within the workforce.
- For the women's movement it held the hope that, combined with award restructuring based on demonstrated competencies, the competency and workplace based system would facilitate the industrial pursuit of equal pay for work of equal value (although there has been some scepticism concerning the value of training reform from feminist researchers and analysts from the very beginning).
- For the welfare sector, the national training reform agenda held the promise of an opportunity for greater equity, career paths, and the avoidance of a low skill/low wage future.

In identifying these hopes and potential benefits it should be stressed that none of the parties involved in the process believed that their claim would unambiguously win out. All parties were sophisticated enough to identify the risks, but to proceed on the assumption that on balance it was possible to stitch together a loose coalition for change which would provide a positive sum outcome for all parties.

It goes without saying that on the whole the arguments which held sway in the debate about VET policy were not based on well supported research findings about the efficacy of competency based and workplace training and assessment. Rather, they were grounded in research findings relating more directly to:

- the nature and context of the Australian economy, to macro economic, industry and trade policy research
- the changing nature and organisation of work and industrial relations
- socio-economic equity and justice

The weight of analysis combined with a socio-political preference for a high-tech/high wage value adding response to the demands of globalisation to identify an 'imperative' for a highly competent and flexible workforce. To the extent that the existing TAFE system could be seen not to be delivering these outcomes, and to the extent that there were international trends which promised their delivery, the relative lack of research findings on the efficacy of the training reform agenda was of scant regard. Moreover, there was plenty of hearsay evidence to the effect that the existing system was too bureaucratic, centralised, inflexible, and incapable of meeting industry requirements.

When thoughtfully combined and articulated these analyses and concerns held the promise of a VET system capable of producing a highly competent workforce and lighting the path to global competitiveness. The arguments were founded on a profound concern about the future viability of the Australian economy, and a well constructed scenario holding sufficient promise to a sufficient array of interest groups. Perhaps we should add a further criterion for an effective paradigm shift:

- The 'a good story goes a long way in the right circumstances' principle.

Perhaps it was, and remains, a good (if exaggerated) story.

Perspectives from practice

In the Australian VET context, 'practitioners' are a diverse group. For the purpose of this paper, the practitioners (whose interests research needs to serve) include industry trainers, HRD managers, TAFE teachers, government officials involved in funding education or training provision, and others who are responsible for providing education and training services to learners, to industry, to government agencies and to enterprises.

What practitioners need

In considering the contribution that research can make to practice it is useful to begin with a clear outline of what practitioners might, reasonably, ask of an effective VET system and, then, to consider what research might do to assist them in achieving those needs.

A consistent and reasonably stable context

The environment within which VET practitioners are operating is one of significant and constant change. These changes have far exceeded the rate of change in the community more generally. For example Hawke and McDonald (1995) identified 12 significant policy documents concerning just one area of the National VET system between 1992 and 1995. Practitioners are confused as to what may be the policy this week, and frustrated by the need to constantly change their practice and documentation.

Clear and feasible rules and regulations

In addition, much of current policy appears to have been driven by ideological, political and 'religious' conviction rather than by any clear understanding of the needs and preferences of the various stakeholders in the VET system. Moreover, policy-makers are being required to work to timeframes which force decisions to be made without adequate reflection, and without the opportunity to test and refine their implementation. This is particularly manifest in the many attempts to define and prescribe regulatory arrangements. Practitioners have consistently defined these as unhelpful, impossible to implement in practice, and unwieldy.

Clear and useful guidance

By the very nature of their role, practitioners are focussed on the implementation of policies developed elsewhere and on translating these into effective and useful outcomes for learners and other clients of the system. Because of their background, their interests, the pressures on their time, competing priorities and a host of other causes, practitioners in general don't want to have to constantly re-invent the wheel. Their dominant interest is in providing the best possible service and, to do that, they want to know:

- how best to carry out their responsibilities
- how to improve their existing practice
- how to avoid making mistakes

Practitioners with different responsibilities also need to be able to engage in constructive discussion and debate, a point made (in the context of the analysis of costs of training and assessment) in McDonald's chapter. Often the structures which might support and encourage this are not in place.

Clear information on why various strategies work and/or are more effective than others

Practitioners are often characterised as wanting to know 'what' but not 'why'. In reality, however, practitioners want to understand the choices they need to make, and are commonly in the position of needing to adapt and modify their work to meet changing client needs and changing contexts. This requires an intelligent and informed understanding of the principles which shape their practice.

Factors which have limited the value of VET research to practitioners

Problems of currency

The constant changes in policy and direction that have been experienced have made much recent research actually or apparently of little value. Frequently, research findings have only been formulated or disseminated after the policy or practice they sought to inform has been abandoned or significantly modified.

Accessibility

Too much of the research to date has been inaccessible to practitioners. This difficulty has two important dimensions:

- a significant proportion of the research has been written in a language and form which is not meaningful to most practitioners
- the findings of the great majority of research in the area has been published in places and ways which are not normally accessed by practitioners. In particular, one-off research reports have been the principal means of publishing research findings. These are difficult to locate, often out of print or otherwise not available

For academic researchers, academic journals and research reports are commonly used but not often available to practitioners. Even where more 'popular' magazines (such as *Australian Training Review*) have been used, these have limited circulation.

Credibility

Practitioners want facts, not fashion, to be the basis of policy. Unfortunately, most practitioners recognise that a significant proportion of the recent Australian VET 'literature' is better described, in Laurie Field's words in an earlier chapter, as based on 'religious' beliefs.

To date, the majority of Australian research on learning and assessment in the workplace has been simply descriptive of other people's practice. Practitioners have not found in such research useful analysis of why some approaches work well under some circumstances, and others do not.

In particular, too much 'research' has been uncritically promotional, rather than critically evaluative. For example, as Docking notes earlier, practitioners are faced with a plethora of models all purporting to be the 'true' or 'best' interpretation of CBA. They need clearer information on choosing between competing models and, ultimately, better guidance on selecting and using different approaches.

'Different strokes for different folks'

A recurring theme observed in the papers reviewed here is the diversity of interests, needs and values which colour the development of research and policy and, subsequently, the extent of its usefulness to practitioners. Two particular facets of this are:

- the wide diversity of understandings of the term 'competence' and the difficulty of moving forward when, in effect, we're speaking different languages
- the divergence in the needs and expectations of different groups of practitioners – exemplified, for example, by the fact that virtually every significant feature of a workplace learning system that an employer might regard as cost-effective, an employee might see as expensive, and vice versa

The researchers' perspective

What do researchers need?

It is impossible to write about the needs of researchers without making some gross generalisations about both research and researchers. The term 'research' covers a wide range of activities on several dimensions: from curiosity-driven research to research commissioned to address a particular specific issue of the moment; from large-scale to small-scale; from research to evaluation to development to consultancy. All will raise their own issues. As will the nature of the 'researchers', a term that might be applied to everyone from an experienced researcher in a large university centre to a practitioner operating alone and attempting to make decisions using research-based information. It could reasonably be said that some parts of this section read a little like a primer on good research practice. This is so. Regardless of whether it has emerged because of the number of neophyte researchers in the area, or the lack of an established research culture, it seems important to portray the issues as they emerged.

In this section we outline what appear to be the key issues that apply to much research (no matter how defined) and which need to be addressed if research is to make a contribution to workplace learning and assessment. While those relate directly to researchers, they are vital considerations if a secure knowledge base concerning workplace learning is to be established and if initiatives are to result in improved outcomes.

A body of data and good-quality research which they can readily access

It does not matter how much research is conducted, the investment is of little value if it is not accessible without difficulty. The more time researchers spend tracking down publications from obscure sources or obtaining copies of government sponsored studies which are out of print and have not been lodged in key libraries, the less time they can spend on research.

Once located, the research must be of sufficient quality to enable confidence to be placed in the findings. This means among many things that the work can withstand critical scrutiny by other researchers. It needs to be well documented and complete and described in sufficient detail to enable comparable studies to be conducted elsewhere. Summaries of findings which may be sufficient for practitioners and implications which may meet the needs of policy-makers are inadequate in themselves for researchers.

Research also needs to speak to different audiences. While research needs to be more theoretically sophisticated, it needs to avoid criticism from practitioners that it doesn't relate to them. This points to the need for different kinds of reporting from a single study.

Research which is adequately contextualised

The single most important feature of any research study is that it is clear what was being studied and in what circumstances the research occurred. The range of workplaces and organisational practices is far more diverse than those to be found in other educational settings and it is a necessary part of interpreting a study that all the salient features of the setting be taken into account. For example many workplace learning practices are driven by industrial agreements and to describe the practices without considering the influence of such agreements is to misinterpret what is happening. General surveys across contexts are vulnerable to criticism of this kind.

Research ought to be fully contextualised – it has to be fully cognisant of the socio-economic and sociocultural context as well as the institutional context. This does not mean that every research project should start with a comprehensive review of the global and domestic context. Rather there is an important place for 'regional' analyses and research projects, but they should proceed on what can be termed ecological principles of full cognisance of the context of the local and specific.

An example of this would be the use of micro-level analyses of costs to complement and elucidate the meaning of system-wide studies of, say, comparative efficiency.

Research which is sensibly conceptualised

Almost as important as the context, is the conceptual framework which the research adopts. All research has a conceptual framework which takes account of other research conducted on similar topics or using similar research approaches, but sometimes the researcher does not know what it is or cannot explain it to others. Unless this is explicit, the biases and limitations of the research cannot often be considered and the status of the findings be assessed.

Research is severely limited if it consists of isolated studies. Unless it uses other work it is of very limited applicability. This means that reports must refer to and take account of other studies. Research needs to be both self critical and critical of the work of others, so that each study can build on others in ways which provide perspectives on workplace learning which are larger than the sum of the parts.

There is also the problem that the overwhelming balance of Australian research into learning and assessment in the workplace has been descriptive and qualitative. Very little has sought to quantify or categorise the data. Very little has sought to test explicit hypotheses.

Sources of sponsorship for research which are not so tightly circumscribed that they cannot deliver a good quality product

The outcomes of research are only as good as the questions which are commissioned. For very good reasons of policy, practice and resources, studies may be constrained by time or scope. This does not pose a difficulty for researchers for any given project. However, if all research is influenced by short term requirements, then it will never be possible to create a literature which addresses broader questions of longer term significance.

What has limited the value of research from the researchers' perspective?

Does research on workplace learning and assessment meet the requirements of researchers as indicated above? The general answer is no. There are a number of issues which need to be addressed.

Research is not sufficiently accessible

Encouragement is needed to publish and to lodge reports publicly, as is an effective clearinghouse for research material. The literature searches undertaken for the project indicate that only a small proportion of the Australian research which has been undertaken can be readily located and accessed. So little of it has been reviewed and collated to date that it is difficult to draw convincing conclusions from it.

Research is not reported in systematic ways or in publications which are readily available beyond the local context. The overwhelming volume of studies in Australia and overseas are reported only to the agency which funded them. A large proportion of these are government bodies which while they do not typically bar publication, tend not to encourage or financially support publication in wider forums. When reports are publicly available, there is often a short print run, a limited circulation list and no consistency in lodging reports in libraries, clearinghouses or indexes of publications (e.g. the Australian Education Index). Much that is worthwhile is effectively lost.

Informal publication in the form of reports does not encourage quality research. When the prime audience of a research report is non-researchers, there is a tendency to write for this audience and pay less attention to reporting on the kind of research issues which are necessary to ensure confidence in the outcomes. In quantitative research this includes issues such as adequate sampling and application of appropriate statistical tests, in qualitative research it includes matters such as ensuring that reported data adequately reflect the emphasises of parties involved and suitably situating studies.

Research is inadequately contextualised

One of the characteristics of workplace learning is that it is highly complex and contextualised. Much of it cannot be understood outside its particular setting and the organisational practices within which it is embedded. Much more effort needs to be taken on revealing and reporting on the context of studies. This includes the motives of the various players who have initiated and participate in the study, the historic, economic and cultural context in which learning is taking place, the various incentives and disincentives which impact on the practice under study, the nature and backgrounds of the staff involved, etc.

Little research takes sufficient account of work done by others. As suggested above, reports and other publications are short on reviewing the literature and locating the study reported among other studies. This leads to a scatter of unrelated and often unrelatable work which does not build to create a wider understanding of workplace learning. The involvement of university researchers in the area is too recent to have made much impact on any of the problems mentioned above although they are slowly contributing to the wider dissemination of outcomes through publicly available journals.

Research is inadequately conceptualised

All research, no matter how 'commonsensical' is based upon a theoretical model or set of conceptions. More emphasis is needed on making these conceptions explicit and revealing the assumptions upon which a given study is based. There is a greater likelihood of research building from study to study if an explicit theoretical framework is adopted which can be debated and challenged. Errors and misconceptions cannot be corrected when they are buried in data. Very little current research in the area has grown from any models or conceptualisations of learning or assessment within workplaces. These theorisations are needed and research needs to support, question and test these.

Research needs to be conceptualised across disciplines. Research on workplace learning exists at the intersection of many different academic disciplinary interests: education and training, organisational behaviour, economics, management, industrial relations, technological change, cultural studies, etc. This necessarily involves collaboration and greater communication paths between researchers who have different affiliations. Most important research questions have a multi-disciplinary character.

Research does not reflect the diversity of interests it serves

The present project has assumed for sake of expediency that there are three main groups of interests in research on workplace learning, but in practice there are many more and their concerns are many and varied. Within organisations, for example there are varying interests depending on whether the perspectives of employers, workers, managers, unionists or shareholders are central. These interests are not reducible to a single perspective. Research on workplace learning must always acknowledge the existence of such interests and how they might impact on how research is conceived, what is being studied and how it is reported.

There is still little *independent* research undertaken on workplace learning. The major volume of research is conducted at the behest of government agencies and is related to the priorities which they determine. There is apparently little research undertaken by organisations except evaluative and costing studies that are directly related to the implementation of particular programs and not reported outside the organisation. There is hardly any research on workplace learning which has been funded from the competitively assessed and peer reviewed sources which normally support academic research. A small amount of research is beginning to be undertaken by research students, often in employment, which is independent in character. Research is driven at present by too limited a set of agendas. This means that the disinterest or independence needed to identify the totality of the context in which workplace learning occurs is missing.

Research is insufficiently critical

Too much emphasis is placed on simple description of practice. Analysis and critical reflection is neglected. Very little has sought to quantify or categorise the data. Very often accounts are taken at face value and the context and dynamics of organisations neglected. A limited range of research approaches has been adopted. The strongest theme of the Colloquium was the need for research to question received wisdom and policy positions. Practitioners are uncomfortable that significant changes have been introduced to systems, processes and ideas with little or no apparent evidence that the changes will succeed or provide improved outcomes.

Research on workplace learning is short-term, patchy and unsystematic. Studies are undertaken for reasons of policy and practice which normally relate to short-term concerns. Short-term projects do not encourage reflection and consolidation of research across a wider front. Research to date has treated the various contexts and locations of vocational learning as if they were interchangeable but there appears to be good reason for explicitly identifying the influences of the industry, the enterprise, the site, the HR context, decision-making systems, etc.

More critically evaluative work is needed. Research is required which explicitly seeks to evaluate the effectiveness of various approaches to learning and assessment in the workplace so as to provide practitioners with clearer guidance on choices between methodologies and assistance with their practice.

There is relatively little strategic sense and consistency in research commissioned. Priorities change from year to year, in response to changing government agendas and political pressures. There is little consistency over time of a kind that could lead to the production of a body of work which could realistically address any one of the issues currently on national agendas. While some degree of co-ordination could ensure that better value is obtained from studies, it is important that this be done in a way which respects the necessary variety of practice and the needs of researchers. Any co-ordination should seek the advice of researchers drawn from a variety of interests.

Further research in workplace learning and assessment

As will be clear from this chapter, there is no shortage of work needing to be done in order to provide policymakers, practitioners, and researchers with the information and perspectives they need in order to create a more effective VET system. However, based on the papers in this book and the discussions at the national Colloquium, we suggest that the strongest need is for research in three main areas.

The nature of learning in the workplace

Under this heading, we mean research into learning from a variety of disciplinary perspectives, including:

- how learning occurs
- the various ways in which it can be organised and controlled
- how it can be made to more effectively meet the needs of and benefit more people
- the classroom and the workplace as environments for learning

- the extent to which common principles of teaching and learning are appropriate across the full spectrum of learning environments
- how teaching and learning strategies interact with individual characteristics such as gender and culture

An evaluation of recent reforms and developments

Throughout this book, a specific reflection of the desire for more critical research has been for research which explicitly seeks to evaluate the effectiveness of various approaches to learning and assessment in the workplace, so as to provide practitioners with clearer guidance on choices between methodologies and assistance with their practice.

Although evaluation is a particular type of research rather than a topic area, it is listed here because of the paucity of research available which has either evaluated recent reforms using sound research methodology, or offered serious critiques, from a research perspective, of VET policy and the resultant practices which affect learning and assessment. Issues that are in need of urgent research are:

- what features of VET reform have 'worked', and why?
- how the various parties have benefited, and at what costs?
- the cost-effectiveness of various approaches to competency-based assessment
- whether the current arrangements properly acknowledge informal learning, or whether informal learning is distorted by the need to 'fit the system'?

Research into system-wide issues

Obviously the effectiveness of workplace learning and assessment is greatly affected by the structures and policy within which it occurs. Research is needed into:

- how to expand employer and employee involvement in VET?
- how to ensure that qualifications are recognised regardless of where they come from?
- what is the desirable mix of private and public provision and on- and off-the-job provision?
- how can perspectives on micro cost issues complement cost analyses at a system level?

Conclusion

It is noteworthy that in the course of the preparation of this chapter, all four authors, writing independently and from different perspectives, have drawn similar themes from the papers and the discussions in the Colloquium. These are:

The need for the context in which research takes place to be understood

Research is needed which details the context within which it takes place, and makes this explicit.

It has to be fully cognisant of the socio-economic and sociocultural context, the institutional context, and the historical and strategic contexts. There is a critically important place for specific studies, but they should proceed with full cognisance of their local and specific context.

Local or regional research projects ought, then, to be balanced and contextualised by broader studies of vocational and adult education and training informed by history, economics, sociology and government. These studies should form a much debated contextual framework for local and regional studies.

A contribution to resolving the deep 'either/or' divides

As noted earlier, a major recurring theme is the extent to which dichotomies have been imposed on the framework within which practitioners are required to operate. What contribution can research make to resolving the deep 'either/or' divides which are increasingly being reflected within the disparity between policy/philosophy and practice?

At a broader level, research is needed to reject the dualist ways of seeing or representing workplace learning and assessment – to express it in extreme terms, to see learning as either instrumentalist tools of exploitative capital or the vehicle for liberal progressive human fulfilment through lifelong learning. Workplace learning can be reduced to neither and it is constituted by variable elements of each, with the mix depending on the specific context and upon the actions of participants in those contexts.

A final comment

There is one other aspect of this book that deserves comment. Four years ago, the landmark report *No small change* (McDonald et al. 1992) identified a number of shortcomings in VET research in Australia. In brief, they were that:

- current research is fragmented
- there is little fundamental and general-issues-based research
- the research that has been carried out is not fully used
- the 'big issues' need much more intensive research
- there is no strong critique of policies and programs

What is striking is that these messages have essentially been repeated in the course of this project. This is despite the fact that there have, in fact, been massive changes in the amount of research activity and the amount of financial support for it over the last three years.

The most plausible explanation is in terms of three factors. Firstly, there is often a considerable time-lag between the funding of research to its application – through the stages of planning a project, carrying it out, analysing the results, publishing, developing materials, to the final application – and three years is not enough. In fact, given the earlier argument for the need for longer and bigger pieces of research, it would perhaps be unrealistic to expect a major change in three years. Secondly, a change in the impact of research requires a change in the human, organisational and cultural context.

It appears that, particularly in some States and some sections of VET, little has changed – the same players are still involved, with the same attitudes and ideological positions. Perhaps there is too much disjunction between the rational paradigm of researchers and the more diffuse and subjective nature of public policy making. Thirdly, the pace of policy change has been such as to make it very difficult for research to have a major policy impact. It is unlikely that research will play any useful role in the sort of situation which can lead to this rate of change occurring.

Much has been achieved – the research base has been massively expanded, there is now a modest amount of infrastructure, and there have been some significant outcomes – and all with a relatively modest injection of funds. However, the fact that the five themes identified in *No small change* are still alive suggests a strong argument that funding and policy bodies need to keep these uppermost in their minds as VET research becomes established in Australia.

References

Hawke, GA & McDonald, R 1996, *When rhetoric meets reality: Issues confronting the National Framework for the Recognition of Training*, Research Centre for Vocational Education and Training, University of Technology, Sydney.

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Appendix

How the book was developed

The project 'Research on workplace learning: Defining the agenda' was established by the Research Centre for Vocational Education and Training at the University of Technology, Sydney as part of its infrastructure funding from the Australian National Training Authority. The aim of the project was to identify what research has been conducted on workplace learning, bring it together in a useful form and point to directions for future research which would help inform debates in this area.

The following approach was adopted:

1 A preliminary map of the area of workplace learning was produced and feedback sought from a broad group of those working in the field.

2 The map was refined and formed the basis for commissioning well-known researchers to write review papers about different aspects of workplace learning drawing on research from Australia and overseas.

3 A National Colloquium was convened with participants from the areas of policy, practice and research in both private and public sectors. The papers were discussed and directions for research identified.

4 These directions were consolidated and an initial version of them presented in this report for further discussion.

5 The papers were peer reviewed by a panel of Australian and overseas experts and revised.

6 The present book which describes the project and its outcomes was produced.

Initial mapping

An initial draft of possible areas for review was sent to a wide range of researchers and key figures in workplace learning and vocational education and training across Australia and a few overseas. Comments were sought on the adequacy of the areas and groupings and their interest in contributing to the project.

From this a revised conception of the area was established and a smaller number of researchers identified who were sufficiently qualified and experienced to undertake a review of the literature.

The original idea that a simple map could be produced which represented the field with discrete area for review was dashed and a more complex view was adopted. This acknowledged that there were many overlapping interests, that the original list was informed more by an education and training than a workplace perspective and that it was not possible to easily distinguish research literature from other literature in the area. In addition it was recognised that as the area of formal education and training within educational institutions was relatively well covered in the literature, there would be an exclusive emphasis on the workplace as a site for learning.

Papers commissioned

The project was fortunate in that some of the most highly regarded researchers in Australia expressed interest in the project and undertook the task of preparing review papers.

The brief they followed was as follows:

The paper should present a well argued synthesis of research which has been conducted in the given aspect of workplace learning and research. It should be accessible to non-researchers with an interest in workplace learning and assessment.

What is to be covered? The major international literature should be considered and Australian literature examined in greater detail.

- Strengths and weaknesses of research examined should be discussed both in terms of quality of research and engagement with significant workplace learning issues.
- Silences and gaps in the research literature should be identified and considered from the point of view of what types of research on what kinds of issue are needed for what purposes.
- The paper should also inform workplace learning and assessment policy and practice.
- Needed research should be emphasised, new research likely to have an impact on understanding and furthering workplace learning should be discussed.
- Both empirical and conceptual studies should be included.

A key dilemma in research on workplace learning can be summarised as: what should be central: learning for work or work for learning? That is, learning designed to facilitate effective working or workplaces as sites for learning. The literature includes studies from both perspectives. For the purposes of the present project, it is particularly important that the perspective of 'work for learning' does not dominate over that of 'learning for work'.

Style of paper. The paper should be of a standard which would enable it to be published in an international refereed journal. However, an overly academic style should be avoided. The paper should be able to be read with profit by policy-makers and practitioners. Care should be taken to explain concepts and terms which are not in wide currency in these groups.

The National Colloquium

A National Colloquium was held on 25–26 July 1996 in Sydney. It succeeded in its aim of attracting a wide range of people with a direct interest in research on workplace learning, but at the same time ensuring that it was not dominated by researchers. There was a very good response from practitioners, policy-related personnel and researchers and there was also some representation from business, industry and unions.

An innovative model for the Colloquium was adopted to maximise discussion and emphasise the aim of generating research directions. Summaries of the papers were provided to all participants and authors were allowed 10 mins to present their ideas. This was followed by two or three discussants who were not necessarily researchers but who had read the papers in advance and whose brief was to draw out the issues and add comments from their own perspective. Following these presentations, participants discussed each session in detail in small groups and made detailed records of the points which arose. These were reported back later and the record retained by the organisers. While the authors would have preferred more time to present, the response of the audience to this format was strikingly positive and there was an enthusiastic evaluation of the event by participants.

Points which emerged from the papers and the Colloquium were incorporated into the final papers and helped inform the final chapter in the book.

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